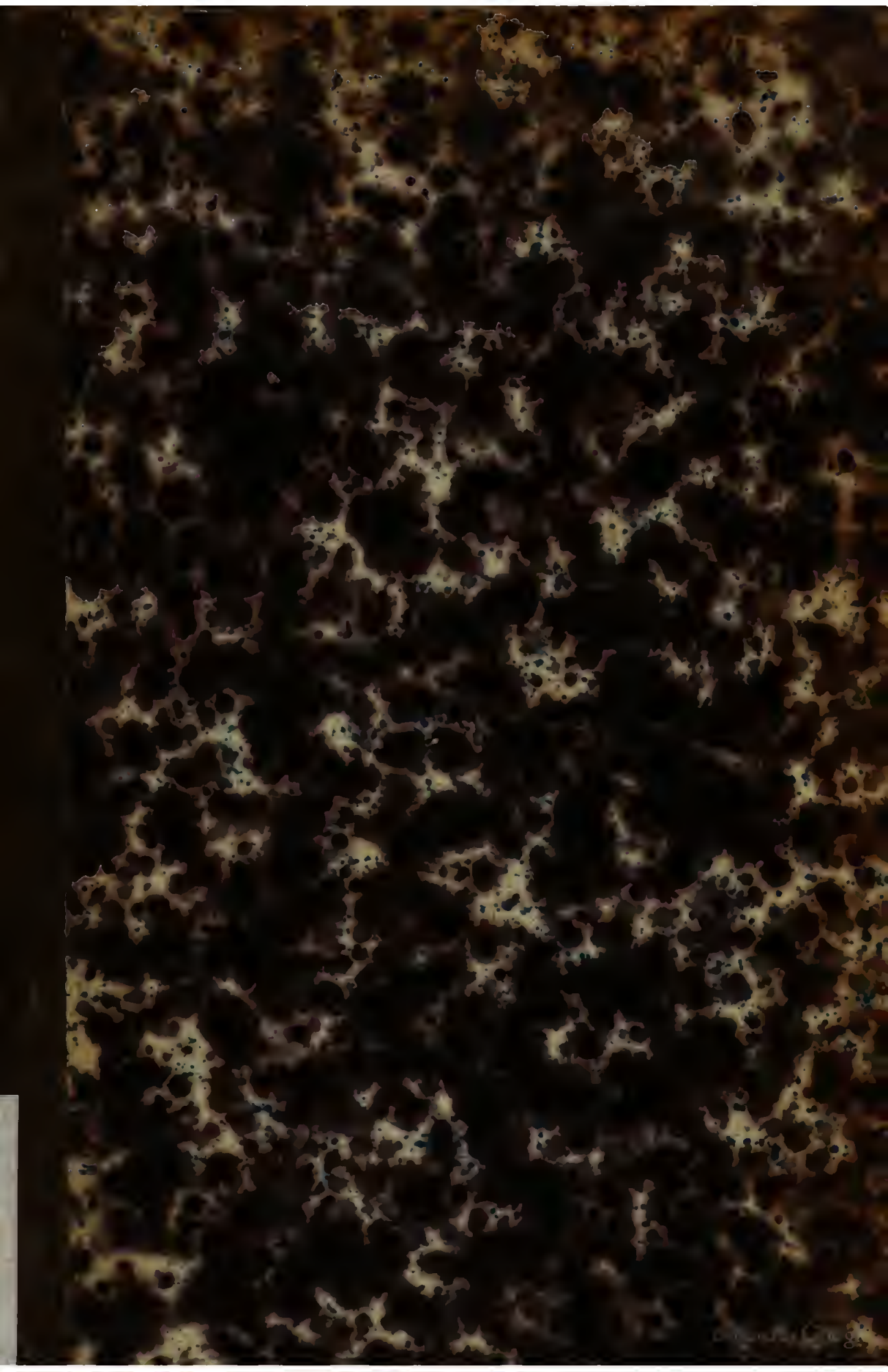

Capt. W. H. Smyth R.N.
with the author's best
regard
2 April 18

SAILING

DIRECTIONS

FOR THE COASTS OF

Eastern and Western Patagonia,

FROM

PORT ST. ELENA ON THE EAST SIDE, TO CAPE TRES MONTES ON THE WEST SIDE;

INCLUDING THE

STRAIT OF MAGALHAENS,

AND THE SEA COAST OF

TIERRA DEL FUEGO.

BEING THE RESULT OF A VOYAGE PERFORMED IN H. M. SLOOPS ADVENTURE AND BEAGLE,
BY ORDER OF THE RIGHT HONORABLE THE LORDS COMMISSIONERS OF THE ADMIRALTY,
UNDER THE DIRECTION OF CAPTAIN P. P. KING, R.N.
BETWEEN THE YEARS 1826 AND 1830.

DRAWN UP FROM THE REPORTS AND JOURNALS OF THE OFFICERS OF
THE EXPEDITION,

BY

PHILLIP PARKER KING,

CAPTAIN R.N., F.R.S., &c.

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1832.

BY AUTHORITY:
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CONTENTS.

ERRATA.

Page 17, line 35, *for* eleven *read* quarter past ten.
for later: at *read* later: at anchor off Port San Julian at 10·34 and rises 38 feet: at.
22 — 26, *dele*, and which being dry when Sarmiento passed, was called by him Point Anegada (drowned land).
27 — 7. *for* flow is *read* flow are.
30 — 13, *for* steep too *read* steep to.
40 — 16, *for* N. W. *read* N. E.
45 — 27, *for* Beaufort *read* Edgeworth.
46 — 10, ditto ditto (also in the margin).
48 — 23, *for* coverd *read* covered.
62 — 29, *for* Fitz Roy Island *read* Fitz Roy Channel.
65 — 18, *after* celery *add* ".
66 heading, *for* MAGALHEANS *read* MAGALHAENS.
— line 18, *for* Ossorno *read* Osorno.
69 — 20, *for* mucho *read* mucha.
75 heading of chapter, *for* Capes Victory Pillar *read* Capes Victory and Pillar.
76 margin, *for* Angesto *read* Angosto.
79 line 4, *for* straglers *read* stragglers.
— — 24, *for* bay *read* harbour.
80 — 30, *for* within *read* with.
81 — 4, *after* description *add* *.
82 — last, *for* Appendice *read* Apendice.
84 — 27, *for* Cape Pillar bears *read* Cape Pillar it bears
86 — 7, *for* side is *read* side are.
90 — 17, *for* HOP *read* HOPE.
96 *for* Chrismas *read* Christmas.
119 margin, *for* Ayautar *read* Ayantau.
— heading, *for* Penas *read* Peñas.

INTRODUCTION.

THE description of the Coasts of South America contained in the following Memoir, is the result of a voyage of Survey, made by order of the Right Honorable the Lords of the Admiralty, in His Majesty's Sloops Adventure and Beagle.

The Eastern Coast of Patagonia, the Western part of the Strait of Magalhaens, the Gulf of Peñas, and other parts of the Western Coast, were surveyed by Captain Stokes of the Beagle. Upon the unfortunate death of that Officer, Captain Fitz Roy succeeded to the Command, and discovered and examined the Otway and Skyring Waters, and surveyed the outer or Sea Coast of Tierra del Fuego,—from Cape Pillar, at the Western Entrance of the Strait of Magalhaens, to Cape San Diego, in Strait Le Maire. The Cockburn and Barbara Channels and some parts of the Strait, and the Interior Sounds and Channels

of the Western Coast, from Cape Tres Montes to the Strait's Western Mouth, were explored by Lieutenants Skyring and Graves, in the Adelaide,—a Schooner, that was added to the expedition in consequence of its being found impracticable to survey so intricate a Coast with the Ships; the remainder was surveyed by the Officers of the Adventure, in her decked boat, the Hope.

The differences of Meridians, between the various points of the Survey, were fixed in all practicable cases by triangulation; but where this mode could not be adopted they were ascertained by Chronometric Observations:—the Zero point being the place of the Observatory at Port Famine, the Longitude of which has been fixed at 70° 54' West of Greenwich.

This determination was obtained principally by Chronometers, from Monte Video and Rio de Janeiro, which agreed very closely with the mean result of a considerable number of Lunar distances observed at Rio, Gorriti, Monte Video, San Carlos de Chiloe, and Valparaiso; and severally referred to Port Famine by the Chronometric chain.

Assuming Villegagnon Island, at Rio de Janeiro, to be 43° 05′ 08″ West of Greenwich, which is the result obtained by us with fourteen Chronometers from Plymouth, the Longitude of Rat Island at Monte Video will be 56° 9′ 30″, and of Port Famine 70° 54′ 01″. The mean of the Lunar observations above mentioned make the latter 70° 54′ 10″. Whence the Zero point of the Survey has been fixed, as above stated, at 70° 54′. Should the Longitude of the station at Rio de Janeiro, at some future time, be more correctly determined, all the meridional differences of this Survey must be corrected by a quantity equal to the excess or defect of what it is here assumed to be.

In this Memoir, references are occasionally made to the works of several Navigators, who have published accounts of the coasts it describes: Of these, the following is a list:—

An Account of several late Voyages and Discoveries; by Sir John Narborough and others. 1 vol. Octavo, London, 1694.

A Voyage to the South Seas in the year 1740-1; containing a Narrative of the Loss of His Majesty's Ship the Wager, &c. &c.; by John Bulkeley, and John Cummins, late Gunner and Carpenter of the Wager. Octavo, London, 1743.

The Narrative of the Honorable John Byron, containing an Account of the Loss of the Wager, &c. &c. Octavo, London, 1768.

Viage al Estrecho de Magallanes por el Capitan Pedro Sarmiento de Gambóa en los Años de 1579 y 1580 &c. Madrid, Año 1768.

An Account of the Voyages of Commodore Byron, Captain Wallis, Captain Carteret, and Captain Cook, in H. M. Ships Dolphin, Swallow, and Endeavour; by John Hawkesworth, L.L.D. 3 vols. 4to., Strahan and Cadell, London, 1773.

Relacion del Último Viage al Estrecho de Magallanes de la fragata de S. M. Santa Maria de la Cabeza en los Años de 1785 y 1786, &c. 4to., Madrid, 1788.

Descripcion Historial de la Provincia y Archipiélago de Chiloe por el Padre Fray Pedro Gonsalez de Agueros, 1791.

Apendice a la relacion del Viage al Magallanes de la fragata de guerra Santa Maria de la Cabeza que contiene el de los Paquebotes Santa Casilda y Santa Eulalia para completar el Reconocimiento del Estrecho en los Años 1788 y 1789. 4to., Madrid, 1793.

SECTION I.

Coast of PATAGONIA, from Port ST. ELENA to Cape VIRGINS.

[*In the following Directions all the Bearings, which are not otherwise distinguished, are corrected for Variation. The Latitudes being all South, and the Longitudes West of Greenwich, and the Variation Easterly, the distinguishing letters* S. W. *and* E. *have been omitted.*]

Port St. Elena. PORT ST. ELENA.—The plan in the Admiralty Chart, which is a copy of the excellent and correct survey by the Officers of the Spanish ships Atrevida and Descubierta, is sufficient for the navigator; there is also a plan in Weddel's Voyage that is equally correct. The harbour may be easily known by some hummocky hills on the north-east projecting point, on the eastern of which is a remarkable stone that appears to have been placed there as a monumental record, but which is a natural production. The best anchorage is at the N. W. corner of the bay, in 6 or 7 fathoms, but not too near to the shore, for when the sea is heavy, the ground-swell breaks for some distance off. In working into the bay the 2 fathom bank must be avoided, for which the low island is a good mark.

Anchorage.

Situation. The projecting head at the north end of the bay is in

Latitude	44° 30′ 45″
Longitude by the mean of 13 chronometers from Goritti (River Plate) .	65° 17′ 25″
Variation of the compass . . .	19° 10′
H. W. at full and change . . .	4 o'clock
rise at springs . . .	17 feet.

Bad water. The water that is contained in the wells, the situations of which are given from Mr. Weddel's plan, is too brackish to be worth consideration; nor is there any fresh water to be obtained from any

Port St. Elena. part of the harbour. Of fuel, a temporary supply may be procured from the small shrubby tree that is described in the account of Port Desire (see page 6), which is tolerably abundant here.

Refreshments. Guanacoes, ostriches, armadillos, and the cavia, or Patagonian hare, are to be procured, as are also wild ducks, partridges, snipes, and rails; but fish seem to be scarce. The guanaco affords an excellent food, but it is difficult to approach them: one that was shot by us, when cleaned and skinned, weighed one hundred and sixty-eight pounds. The Indians sometimes visit this part of the coast, which is used by them principally for burying their dead.

Reef off Cape Raso. In approaching Port St. Elena from the northward, there are several rocks near the shore which are very little above the water, and there is a considerable reef in the offing, situated four miles and a quarter S. 78° E. from Cape Raso, and N. 51° E. eight miles from the N. E. trend of the north head of the port. It is a dry rock, and is near the extremity of a ridge which probably projects off from the latter point, for there are two dry rocks in the same line of bearing, one a mile and a half, and the other three miles and one-third from the point, besides several patches which break. The tide sets rather strong along the shore, which is fronted by reefs for two or three miles off; great caution should therefore be used in approaching the coast, as the water is deep, and if becalmed it may be necessary to anchor, which will be in at least 30 fathoms water.

Should the above reef be as continuous as it appears, there should be good riding in the bay between Cape Raso and Port St. Elena.

Between the south head of Port St. Elena and Cape Two Bays are two bights in the coast, the southernmost of which is

Cape Two Bays. considerable, and may probably afford a good anchorage. CAPE TWO BAYS is a rounded point; the hill close to the sea on the most projecting part of the cape being in lat. 44° 58′; the small islet of ARCE, to the south-east of the cape, is in lat. 45° 0′ 50″ and lon. 65° 25′ 25″; and RASA ISLAND is in lat. 45° 6′ 30″, lon. 65° 20′ 11″.

The coast trends westerly round Cape Two Bays and forms the northern part of ST. GEORGE'S GULF.

The southern limit of St. George's gulf, CAPE THREE POINTS, is very easily discovered at sea by its very level outline, being a long range of table land higher than any part near it, visible from the deck for more than twenty miles; and to the south-east, detached, but near the range, there is a conical hill, which is easily discerned from the northward, but from the north-east is not seen, being concealed by the ranges of land behind it in the south-west. At six miles and a half to the south-east of Cape Three Points is CAPE BLANCO, a low rugged tongue of land, terminated by a rounded but very rugged hillock and two smaller ones; which, when first seen, appear to be islands detached from the coast. The neck of land which forms the communication with the coast is low and sandy, and probably offers, on its south side, shelter from southerly winds. Capes Three Points and Blanco.

There are several shoals off this part of the coast, that at low water would doubtless be dangerous. His Majesty's Ship Adventure passed over two, and had not less than 5 fathoms, but possibly at low water the depth may be considerably less; they are thrown up by the force of the tide, which sweeps round the cape, into and out of St. George's gulf, with great strength. Shoals off Cape Blanco.

The north and south ends of the northern shoal bear respectively from Cape Three Points and Cape Blanco east, distant from the former seven miles, and from the latter five miles, consequently it extends in a N. by W. and S. by E. direction for 5½ miles; it is scarcely a quarter of a mile wide.

The north end of the southern shoal bears S. 75° E., seven miles from Cape Blanco, and extends in nearly a south direction for two miles. Between these shoals there is a passage two miles wide, and the depth gradually increases to more than 15 fathoms.

Within the outer shoals are two others seen by the Spaniards; they are laid down from the authority of a chart communicated to me by Don Felipe Banza. The outer *northern* shoal is probably the one noticed by Commodore Byron, who described it to bear from Cape Blanco W. S. W. ½ S. 4 leagues, the depth diminishing, as he approached it from the eastward, from 13 to 7 fathoms.* There is, however, much shoal ground to the north east; for in the year 1829, having approached the land, and being

* Hawke-worth, i. 13.

Shoals off Cape Blanco.

fourteen miles from Cape Three Points, bearing S. 38° W. *mag.* the depth rather suddenly decreased from 40 to 14 fathoms, pebbly bottom, so that the foul-ground extends for fourteen or fifteen miles to the north-east of the cape, the edge of the bank (14 fathoms) being about eight or ten miles within the soundings of 50 fathoms. On approaching it, the quality of the bottom becomes irregular, and changes from oaze to sand, and the shoal patches are pebbly; so that by attention to the soundings and nature of the bottom, these shoals may be easily avoided.

A good mark to avoid them is, not to approach so near to the cape as to see the rugged hillock of Cape Blanco, and to keep the high land of Cape Three Points, which is visible from the deck about twenty miles, on the horizon.

Tides.

The flood or northerly tide ceased in the offing at 4^h 15′ after the moon's passage, which agrees very well with the establishment of the tide off Penguin Island; but in the neighbourhood of the cape and among the shoals, the tides may be less regular; they produce strong ripplings, and set with considerable strength.

Supposed error in the chart.

There is reason to think that the two capes are laid down erroneously in latitude, and that the distance between them should be greater; for by a latitude observed at sea, compared with good bearings of the two capes, the error of the chart would be seven miles too southerly. We had no good opportunity of investigating this point, and the situation assigned to them is taken from the chart communicated to me by Don Felipe Bauza, above referred to.

Coast between Cape Blanco and Port Desire.

The coast line between Cape Blanco and Port Desire has been imperfectly seen; within the distance of three to five miles from the shore, however, there are several small patches of rock, which uncover at half tide, but beyond that belt the coast is free from any known danger, and may be approached by sounding in not less than 14 or 15 fathoms: within that limit the ground is foul. To the northward of Port Desire the land is low, with a shingle beach, excepting for the first three miles, where it is high and cliffy. The north point of entrance of the bay is a steep bluff, which is remarkable in being the only point of that description along the coast to the northward. At three miles N. 28 E. *mag.*

from this bluff there is a ledge of rocks (Surrel's Ledge), a quarter of a mile without which the depth is 13 fathoms. The Tower rock becomes visible after passing this ledge; it opens out when the north bluff bears S. 50° W. *mag.* A ship bound to Port Desire, or merely wishing to anchor in the bay which fronts it, may procure a good berth in 6¾ fathoms, at low water, well sheltered from N. ¾ W. to S. 50° E. *mag.* with the

Surrel's Ledge

North bluff bearing	N. 48° W.	*Magnetic.*
Tower rock	N. 82¼ W.	
Penguin Island	S. 50½ W.	

Anchorage off Port Desire.

This situation being a little to the southward of the fair way of the port, and about one mile and a half from the nearest shore, is quite out of the strength of the tide; the bottom, being strewed with rounded stones, is rather foul for hemp cables, but the holding ground, although of such suspicious quality, seemed to be good; at this place the tide rose from 6¾ to 9¼ fathoms, a difference of 16½ feet.

Port Desire.—The river of Port Desire has rather a difficult entrance, from the strength of the tide and its narrow width, and it is rendered still more confined from several rocky reefs that extend off the north shore to nearly mid-channel. There is good anchorage off the mouth. By waiting, therefore, for low water, all the dangers that exist will be seen, and the vessel easily dropt in with the tide, should the wind be, as it generally is, westerly. If it be fair, it is advisable for the ship to be in the entrance at slack water; or, if the breeze be strong enough, a little before: as the water is deep on the south shore, there seems to be no real danger that may not be avoided by a careful look out for kelp, which always grows upon, and therefore plainly indicates the existence of rocky ground. The course in is about S. 76° W. *mag.*, and the distance from the entrance to the anchorage is one mile and a half. The anchorage is off the ruins* on the north shore, and the vessel should be moored: the tide sets in and out regularly.

Port Desire River.

Directions for entering.

Anchorage.

* Some years since a Spanish colony was founded at Port Desire, but not answering the purpose it was soon afterwards given up. The ruins of the edifices, which are of stone, and the remains of a fruit garden, that at our visit produced quinces and cherries, distinctly point out the spot.

Port Desire River.

The river was examined for sixteen miles, but is probably navigable to a much greater distance. Four miles above the ruins there is a small peninsula, connected by a narrow isthmus to the north shore; by sending a party up, and stationing men with

Refreshments.

guns on the isthmus, it is very likely that several guanacoes may be shot as they are driven across it; for the peninsula is their favourite place to feed upon. These animals are very abundant, but unless stratagem be used, they are very difficult, from their shyness, to

Wood and water.

be approached. There are some water holes near the ruins, which generally contain water, but of so brackish a quality as scarcely to be worth notice. The wood, although of very small size, burns well, and is much prized by sealers for that quality; it is a low, shrubby tree, bearing a yellow flower, with a prickle at the extremity of every leaf. The sealers call it *piccolo*, from the small dimensions of the stem. The roots also are dug up and used for fuel.

Penguin Island

The outer side of PENGUIN ISLAND is bold, and may be passed very close without danger, for the tide rather sets off than towards

Tides.

the shore. The tide is very rapid, and forms, even in a calm, strong ripplings, which in a breeze must be very dangerous for boats to pass through, and, indeed, not agreeable for vessels of any size. The flood sets to the northward, and during its strength at more than three knots; for we found the ebb to have set us fifteen miles to the south in five hours. Off the island the high water, or the termination of the northerly stream, takes place at about 4^h or $4^h\ 15'$ after the moon's passage; which is $3\frac{1}{2}$ or 4 hours at least after it is high water at the shore.

Sea Bear Bay.

SEA BEAR BAY,—is one of the best anchorages that I know of on the coast, but is difficult of access, without a leading and a fresh wind, on account of the strength of the tides, which set to the northward through the narrow channels separating the rocky islets that are strewed between Penguin Island and the main land. The bottom, besides, is not only deep, 23 to 30 fathoms, but is very foul and rocky; and although a ship may be prevented from drifting through by dropping an anchor, yet its loss, from the foulness of the ground, would be almost certain.

Direction for entering.

In entering the bay, border pretty close to the low rocky point to the southward, to avoid a reef that lies about a quarter of a mile

without it; but as the sea always breaks upon it, the eye and a due consideration of the tide are the best guides. This reef extends for some distance to the eastward of the breakers, and therefore the tides, when within it, sets in or out of the bay, but with little strength. Should a ship not be able to enter the bay, there is anchorage off the point between it and the reef, on, I believe, tolerably clean ground. You will have 12 or 13 fathoms off the reef; then the depth shoals for one or two heaves to 7 fathoms, after which it deepens again: you may then haul across the bay, and anchor at about a quarter of a mile within the low rocky point, bearing E. ¼ N. or E. by N. by compass, in 4 fathoms low water, avoiding the kelp which projects off from the sandy beaches; this is, however, sufficiently distinct, and for further directions the plan will be the best guide. A small vessel may easily turn in, but I should hesitate taking such a step in one that I could not make quite certain of. When once in, the anchorage is good, and protected at all points, except between N. 41° and N. 78° ½ E., but from the appearance of the beaches I do not think a heavy sea is ever thrown into it. There is no wood to be procured of any size, and the few gallons of water, that are collected in the wells at the point, so very precarious as to be scarcely worth attention. The passage to the watering holes is over a small rocky bar, which a boat may cross at ¾ flood; it is immediately within the eastern point of the bay: there is a small spring at the north end of the third sandy beach, which a herd of guanacoes was observed to visit every morning, but as the water only trickles down in a very small quantity, it cannot afford more than a temporary supply. Two of the three wells at the point we found to be full of sea water, which had breached over the rocks; the other contained about forty gallons of rather a brackish taste. Besides a good and secure anchorage, this place affords no other advantages; it is convenient for sealing vessels to anchor in whilst employed in their occupation upon Penguin Island.

Sea Bear Bay.

Anchorage.

Wood and water.

Sea Bear Bay is in latitude 47° 56′ 49″, and longitude 65° 44′ 00″; variation 20°; high water at full and change 12ʰ 45′, and the tide rises 20 feet.

Situation, variation, and tides.

Spirings Bay is contained between the south head of Sea Bear Bay and the point within the Shag Rock; it forms a considerable

Spirings Bay.

Spirings Bay. bight, but is much exposed, being quite open to the south and east, and at the conclusion of a south-west gale, when the wind always veers to south and south by east, there is a considerable sea. The shore is skirted for some distance off with many rocks, and the bay altogether is quite unfit for anchorage. The land is of the same height as about Sea Bear Bay, but has more lumps or nodules of rocky hills visible on the outline of its summit.

Eddystone Rock. Off this bay, in the old chart, is laid down a rock called the Eddystone: it would seem that this rock and the Bellaco Rock, discovered by Nodales in 1619, is the same danger; but the whole coast between Cape Blanco and Port St. Julian is much strewed with shoals, which are the more dangerous from the strength of the tides which set between them. In navigating upon this part of the coast, the depth and quality of the soundings is a good guide, and, as a general rule, when the depth is more than 40 fathoms, there exists no *known* danger.

In directing the ship's course by night near this coast, regard should be paid to the tide, which sets with considerable strength, the current running parallel with the shore.

Shag Rock. The SHAG ROCK is a whitish mass of rock, perfectly bare, lying about one mile and a half off shore; two miles to the south of it are four small dark coloured rocks; and at three miles S. S. W. from it, there is rather a large rocky islet.

On the land, and at a short distance from the coast, are three hills, which appear, when a little to the southward of Sea Bear Bay, like three round-topped hills, but on reaching more to the southward they extend in length and form into two hills, and, at three leagues to the south of the Shag rock, they appear to form one mass of table land. WATCHMAN'S CAPE is very low, and may be distinguished by its bell-shaped mount: at two leagues from the point is a shoal with kelp upon it, on which the least water is 3 fathoms, but on approaching it the depth gradually decreases: there are also many other shoal patches, but all are buoyed with sea weed; the ship passed between several in 7 and 9 fathoms.

Watchman's Cape.

The ground is very foul and uneven for more than four miles from Watchman's Cape; here the coast trends round to the westward and becomes higher. Being to the southward of the

cape, there appears a mount about two miles from its extreme point resembling Monte Video, in the River Plate, both in shape and colour, but not quite so high; it is called MONTE VIDEO, and is in latitude 48° 18′ 55″, and longitude 66° 18′ 00″. Watchman's Cape.

The BELLACO ROCK, or San Estevan's (Stephen's) Shoal, which was discovered by the Nodales in 1619, was searched for in vain in the Descubierta and Atrevida's voyage; but Captain Stokes, in the early part of 1828 on his passage down the coast, found it and had an observation of the sun close to it for the latitude. It is in lat. 48° 30′ 50″, and lon. 66° 9′ 25″. It bears S. 13° E., ten miles and a half from the extremity of Watchman's Cape, and S. E. *mag.* from Monte Video. The rock is a dark mass, about 9 or 10 feet above the water at high tide, and has the appearance of a boat turned bottom up: within half a mile of its south side the Beagle sounded in 12 and 15 fathoms, rocky bottom, and on its east side, at the same distance, the depth is from 20 to 24 fathoms. The ground around it being foul and uneven, the coast in its neighbourhood should be avoided. Between Watchman's Cape and Port St. Julian the land is of moderate height. Bellaco Rock.

WOOD'S MOUNT is visible from the deck for at least eleven leagues, and is a good mark for PORT ST. JULIAN, being flat-topped and much more elevated than the land about it; the trend of the coast may also be a good mark; but as the land about Port St. Julian is higher than to the southward or northward, and Wood's Mount is so remarkable a feature, no mistake can be made. In a line with the south point of entrance the mount bears N. 86° ½ W. (W. 16° ½ S. *mag.*) The north head, Cape Curioso, is a low point jutting out to the northward, formed of cliffs horizontally stratified, of which the upper part is white-brown, and the lower generally black, or with black streaks. Port St. Julian.

Keeping Wood's Mount bearing S. 67° W. by compass will lead you to the south head; which will be easily distinguished when at the distance of six or eight miles, or more, according to the state of the weather.

The land to the southward of Port St. Julian is uniform, flat, and low; it is covered by scrubby bushes, and fronted by a shingle

Coast near Port St. Julian.

beach. At ten or twelve miles south of it, coming from the E. S. E., a small flat-topped hill is seen over the low coast hills.

In lat. 49° 27′, the character of the coast changes entirely to a range of steep white clay cliffs, the average height of which was calculated, by angular measurement, to be about three hundred or three hundred and thirty feet. They rise like a wall from the sea, which, at high water, nearly washes their base; but at low water they are fronted by a considerable extent of beach, partly of shingle and partly of mud. Some short rocky ledges, which break at half tide, lie off certain parts of this range, but none of the ledges extend for more than a mile from the shore. This cliffy range occasionally forms projections, but so slight as not to be perceived when passing abreast of them.

Anchorage off the coast.

Anchorages along the coast may be taken up, with the wind off shore, at from a mile to two miles from the beach, in from 9 to 12 and 14 fathoms, oazy bottom. In lat. 49° 55′ the range of steep white cliffs begins gradually to diminish in height, and terminates, at nine miles farther to the southward, in a low point, forming the northern side of the entrance of Santa Cruz river. It is called in the chart North Point, and is in lat. 50° 5′ 20″, and 68° 3′.

Santa Cruz.

Santa Cruz.—The appearance of the coast about the entrance of the river of Santa Cruz is very remarkable, and easy to be known, from the manner in which it makes when seen from the northward; and is even more conspicuous when seen from the southward. From the latter direction a coast line of cliffs and downs of considerable height is seen extending to the southward of the entrance as far as the eye can reach, and terminating abruptly to the northward in a high, steep, flat-topped cliff, Mount Entrance, of which the upper part descends vertically, the lower slopes off, and appears to be united with some very low land, which will be seen extending (according to the distance off) two or three points of the compass to the northward of it. Mount Entrance is at the south entrance of the river, and is, by angular measurement, three hundred and fifty-six feet high; the low land is on the northern side of the entrance of the river.

The outer part of the bar, on which at low tide there is

fourteen feet water, is nearly four miles S. 63° ½ E. from Mount Entrance, and nine miles from North Point, bearing N. 54° E. Santa Cruz Bar.

Fourteen miles up the river, on the south bank, is WEDDEL'S BLUFF, a conspicuous headland; and eleven miles farther is another called BEAGLE BLUFF. Weddel's Bluff, open of the south entrance (and in a line with the centre of Sea Lion Island), bearing N. W. by W. ½ W.* by compass, is the leading mark for the passage over the bar: with this mark on, and at high water, the Beagle crossed the bar in 7½ fathoms†; the Beagle Bluff, a little open of the low points of the north side of the river, is also a leading mark to cross the bar. Directions for crossing it.

After passing the bar, which is about a mile broad, there is no impediment to a free course up the river, keeping midway between the narrow points of entrance, until reaching the shoals which project off the east point of Sea Lion Island. The best anchorage seems to be that occupied by the Beagle, on the south side of Sea Lion Island, where the water is shoaler, and the tide not so strong. The plan precludes the necessity of any further notice of the harbour.

At Weddel's Bluff the river divides into two arms; the northern one, which trends under the east fall of Beagle Bluff, was examined by Captain Stokes for twelve miles above its commencement, where it ceased to be navigable, even at high water. Its bed was divided by banks of sand into several little fordable streams, preserving, as far as the inequalities of the land would permit the eye to follow their course, a mean N. W. by N. direction. The stream at this part was quite fresh, but still subject to the regular ebb and flow. On the boat's return she was left dry for six hours, in the middle of the channel, about two miles above Beagle Bluff. At half tide the boats took in their water at this place. Description of the Rivers.

The shore on the south-west side is a range of clay cliffs, of the average height of two hundred and fifty feet, with grassy downs, and intersected with vallies and ravines. On the eastern

* This is the bearing given by Weddel in his account of Santa Cruz.

† The rise of the tide is considerable; in going out, after crossing the bar, the Beagle anchored, and at low tide the water had fallen twenty-six feet.

Description of the Rivers of Santa Cruz.

side, the land, for the most part, is low and level, with a shingle beach; the aspect of the country is dreary, the soil gravelly, and the vegetation scanty, the largest production of that nature being bushes bearing berries, none of which exceed seven or eight feet in height. Many brant geese and ducks were seen, as well as the common sea fowl of these parts, such as penguins, corvorants, gulls, ducks and divers; several ostriches also made their appearance on the beach, and traces of guanacoes were observed.

The south-western arm, which is the most considerable one of the two, was examined for thirty-three miles. It was supposed by Weddel to be of such considerable size and interesting appearance as to be likely to communicate with some branch from the Strait of Magalhaens. The first reach of the arm runs S. W. by W. six miles, with a mean breadth of two miles and a half. At one league and a half up, the boat, being anchored for the night in mid-channel in twelve feet, was left dry at low water. At the place of the first observation, on the north side, in lat. 49° 57′, and lon. 68° 53′, the influence of the tides had altogether ceased, and the water was quite fresh. The stream ran beautifully clear and pure, with the velocity of at least five miles an hour, over a bed of pebbles mixed with dark sand; its mean breadth being three quarters of a mile, and depth in mid channel eight feet. It runs between two nearly parallel ranges of hills, about four miles asunder; beyond this the reaches are short, seldom more than two miles long, forming tortuous courses between S. S. E. and W. by S. The wind blew directly down, and the rapidity of the stream was so great that the boat was obliged to be tracked up the river.*

By the plan, the examination terminated in lat. 50° 9′, lon. 69° 21′, which is forty-five miles in a due west direction from its mouth, but by the course of the stream fifty-three miles.

Anchorage off the Bar.

At an anchorage outside the bar, Mount Entrance bearing N. 82° W. five miles off, and Weddel's Bluff N. 65° W., the Beagle rode out a gale from the S. S. W. and South with a heavy sea without driving. The soundings that are marked in

* The above descriptions of Santa Cruz and the river is taken from the late Commander Stokes's MS. Journal

the chart, outside the bar, were taken at low water, whilst the ship occupied the above anchorage. Santa Cruz.

The tides in the offing were observed to flow very regularly six hours each way, but to turn two hours later than the time of high water in shore. The flood, as before, was observed to run to the northward. Tides.

The coast to the south of the river is bounded by a ledge of rocks, which are either dry at half tide, or are then shown by a line of breakers: they extend as far off as three miles. On one occasion the Beagle anchored among them, and had some difficulty, and not a little risk, in escaping.

Between Coy Inlet and Santa Cruz the coast trends slightly in, and is formed by a succession of cliffs and intervening low beaches. Coy Inlet is conspicuous, as it is the only part of the coast that has the appearance of an inlet between Santa Cruz and Cape Fairweather.

When within seven miles of its latitude (50° 57′), as well to the northward as to the southward of it, a ship should keep at the distance of four or five miles off the coast. There can be no inducement to go nearer, as it affords neither fuel nor water; and if incautiously approached much trouble and even danger may ensue, from the ledges of rocks, which project at least three miles, and perhaps more, from the coast.

Coy Inlet.—There is no account either of Coy Inlet or of the Gallegos River in Captain Stokes's Journal: what is here given is taken from the chart, and from what oral information I have received. Coy Inlet.

Coy Inlet is a shoal salt water inlet, terminating at nineteen miles from the entrance, and fronted by a bar of rocks, leaving a passage only of six feet water on their south side; inside there seems to be little more than three feet water, and, in most parts of the inlet, the banks, which are of mud and sand, are dry at low water; it is useless for any other purpose than to afford shelter to a small boat. The southern side of the inlet is cliffy, and at its termination receives the drains of an extensive flat country.

Thence to Cape Fairweather the coast is similar to the northern part, but more free from rocky ledges, and good anchorage may

Coast between Coy Inlet and Cape Fairweather.

be had from two to six miles off shore, in from 7 to 12 and 14 fathoms, muddy bottom; the water shoaling gradually to the shore. The beach is of shingle to high water mark, and then of hard clay as far as one hundred feet beyond the low water limit, where a green muddy bottom commences, and the water gradually deepens. The outer edge of the clay is bounded by a ledge of rocks, on which the sea breaks; it extends for some distance parallel with the coast.

Tides.

The flood sets to the N. W. by N., and the ebb S. E. by S., six hours each way; high water at full and change between 9 and 10 o'clock, and the tide rises twenty-four feet.

Fresh water.

In lat. 51° 16′, about seventeen miles north of the cape, there is a ravine containing abundance of fresh water, which may be obtained, when the wind is off shore, without any difficulty; it is standing water, and being much grown over with plants, may not keep, but for a temporary supply it seemed to be very good.

Cape Fairweather.

Cape Fairweather is the south extremity of the long range of clay cliffs that extends from Coy Inlet, almost, without a break. The cape resembles very much Cape St. Vincent, on the coast of Spain; it also bears a very great resemblance to Cape Virgins, for which it has frequently been taken, notwithstanding there is more than forty-five miles difference in the latitude of the two headlands. This mistake was made in the Adventure as well as in the Beagle on our first visit, when, no observation for the latitude having been obtained, we were two days at anchor off it before our error was discovered. A similar error was also made by one of the ships belonging to the fleet under the command of Loyasa, in the year 1525 (see Burney's Collection of Voyages, vol. i. p. 131): and the Nodales, in their description of the coast, warn the navigator from mistaking the one for the other, "y venido de mar en fuera à busear la tierra, facilmente podian hacer de Rio de Gallegos el Cabo de las Virgines;" (and in making the land Cape Virgins may easily be mistaken for the River Gallegos).—Voyage of the Nodales, p. 53.

On the old charts of this part of the coast the shore is described to be formed of chalk hills "like the coast of Kent:" the resemblance, certainly, is very great, but instead of chalk they are of

clay. They are from three to four hundred feet high, and are horizontally stratified, the strata running for many miles without interruption. Cape Fairweather.

The interior is formed by open plains of undulating country covered with grass and plants, among which is abundance of wild thyme, but entirely destitute of trees: it abounds with guanacoes, which may be procured by laying in wait at the water holes. Description of Country.

Besides the pond above-mentioned, there is no want for fresh water; it may be seen trickling down the face of the cliffs at short intervals. Fresh water.

The entrance of the RIVER GALLEGOS is formed on the north side by the cliffy land of Cape Fairweather, and on the south by a low shore that is not visible at sea for more than four or five leagues, excepting the hills in the interior, called the FRIARS, the CONVENTS, and NORTH HILL. It is fronted by extensive sand banks, most of which may be crossed at high water, but at half ebb they are almost all dry. The entrance is round the south extremity of the shoals, which bear from the south trend of the cape S. 43° ½ E., distant ten miles. The passage in is parallel with the coast to the southward of the entrance, taking care not to open the land to the northward of Cape Fairweather's most eastern trend; which, when in the fair way, should bear N. 40° W. *mag.* The shore on the larboard hand must then be gradually approached, and, in the present state of the knowledge we possess, the ship should be anchored to await low water, in 10 fathoms, at a mile and a half from the shore, so soon as the south point begins to be observed to trend round to the westward; the anchorage there is good, and well sheltered from the prevailing winds. River Gallegos. Directions for entering.

By anchoring, the passage in will be easily detected, and may be passed before the shoals are again covered, which will be a good guide: 4 fathoms is the depth at low water in the narrowest part of the channel. Anchorage may be taken up on the south side, for to the northward the banks are extensive. Anchorage.

There is also a middle, and as it appears to be the widest may be the best, channel, for crossing the bar. The outer part was not completely examined; but, no doubt, there is a sufficient depth of water at three quarters flood for any vessel to pass it.

River Gallegos. The southern channel, however, is preferable from having the land as a guide.

The river runs in to the westward for thirty miles, and then winds more southerly between two ranges of hills. Its banks are formed of downs, abounding with guanacoes and ostriches. The water is fresh at twenty-five miles from the mouth. In the entrance the time of high water at full and change is 8^h 50′; the rise of tide, at the springs, is forty-six feet, and the stream runs as much as five miles an hour.

Coast to the north of Cape Virgins. From the south entrance of the Gallegos River, the coast, towards Cape Virgins, extends in a more easterly direction than it does to the northward of Cape Fairweather; and, for the first half of the distance, is formed by a low shelving coast, that at a few leagues from the shore is not visible, so that a stranger might readily suppose it to be the entrance of the Strait of Magalhaens. There are, however, some marks by which it may be known, even should the latitude not have been ascertained. In clear weather the Friars and the other hills near them would be visible; and in thick weather the soundings off the cape will be an infallible guide; for at the distance of four miles off no more than 4 fathoms will be found, whereas at that distance from Cape Virgins the depth is considerable: the bottom also to the north of Cape Fairweather is of mud, whilst that to the north of Cape Virgins is of gravel or coarse sand; and the latter cape has a long low point of shingle running off it for nearly five miles to the S. W.; and, lastly, if the weather be clear, the distant land of Tierra del Fuego will be visible to the S. S. W.

At eighteen miles to the southward of Cape Fairweather the cliffs again commence, and continue to Cape Virgins, with only one or two breaks; in one of which, eight miles north of the latter cape, I think a boat may land, if necessary. There is good anchorage along the whole coast between the Gallegos and Cape Virgins, at from two to five miles off shore; but the bottom is rather stony and might injure hempen cables. As the cape is approached, the ground becomes more foul.

Of the Winds and Weather, Tides, and Variation of the Compass, between Cape BLANCO and Cape VIRGINS.

Wind and weather.

Our experience of the wind and weather upon this part of the coast was not sufficient to enable us to form any judgment of the changes that are liable to occur. The prevailing winds, particularly towards the southern portion, are from the south-west, from which quarter the gales are the strongest; but near the land, during the summer season, they veer about between South and W. N. W.; and in the winter, when the sun has northern declination, they hang more commonly to the northward of west. Northerly winds are accompanied by misty or foggy weather, particularly on that portion of the coast between the Rio de la Plata and Port St. Elena.

Marine barometer.

The marine barometer here is of signal advantage. It is low with a northerly wind, but as soon as the column has fallen to twenty-nine inches or lower, and ceases to fall, a change of wind from the S. W. may be expected; which commences with, or very soon follows, the ascent of the mercury; the wind then freshens and blows hard, and the weather clears up. The clouds are white, of large size, and of rounded form, and the air becomes elastic, dry, and cold. During the existence of, and for some days preceding, a northerly wind, there is generally a very copious deposition of dew; indeed, the appearance of it is an infallible presage of the change. With northerly winds the air is mild and excessively damp, but when they blow from the opposite quarter it is cold and dry. The wind rarely blows from east, but sometimes obliquely towards the coast from N. E. or S. S. E.

Tides.

The FLOOD TIDE sets to the northward, parallel with the coast. Near Cape Virgins the northerly tide ceases at about four hours before the moon's passage; in the Gallegos River it is high water at full and change at 8^h 50′, and rises forty-six feet: at Cape Fairweather at nine o'clock, and rises twenty-eight feet: at Coy Inlet at between nine and ten o'clock: at Santa Cruz about eleven o'clock, but in the offing two hours later: at Sea Bear Bay 12^h 45′, rising twenty feet: Port Desire 12^h 10′, rise eighteen feet and a half: and at Port St. Elena at four o'clock in

the afternoon, the rise seventeen feet. In the offing of Port Desire the tides are three and a half or four hours later than they are in shore, which is probably owing to the eddy tide setting out of St. George's Gulf.

Variation.

The VARIATION of the compass gradually increases from the Rio de la Plata, where it is about 14°: in lat. 36°¼, lon. 55°¼ it is about 14°½: in lat. 41° and lon. 60° it is 16°: in lat. 41°¾ and lon. 60°¾ it is 17°: at Port St. Elena 19° 10′: at Port Desire 19° 42′: at Sea Bear Bay 20° 47′: at Port St. Julian 22° 18′: at Santa Cruz 20° 54′: at the River Gallegos 21° 47′: and at Cape Virgins it may be considered about 22°½. At the last place, according to Sir John Narborough,* the variation in the year 1670 was 17°, and Wallis and Carteret,† in the year 1767, found it 24° 30′; so that it has scarcely altered within the last hundred and sixty years.

* Narborough's Voyage, p. 60.

† Hawkesworth, vol. i. p. 410.

SECTION II.

Strait of MAGALHAENS—Cape VIRGINS to Port FAMINE.

Cape Virgins, a steep cliff, about three hundred feet high, (in lat. 52° 18′ 35′, and lon. 68° 16′ 55′,*) is the southern extremity of the Patagonian coast, and the north entrance of the Strait of Magalhaens. There is an appearance of a reef that may extend off the point for half a mile, but not beyond that distance. The Adventure passed at one mile and a half from it, sounding in 8 fathoms, stones; and then, standing to the south, crossed a bank of gravel, sounding regularly in 7 fathoms, until Dungeness Point bore S. W. by W. by compass, when the water deepened. This bank trends off more to the southward and eastward, but I believe its termination is at five miles S. 87° E. from the extremity of Dungeness. Cape Virgins. Reef off it.

I do not imagine that any part of it is shoal enough to endanger a ship, but near its extremity there are some overfalls, among which the least depth that we found was 5 fathoms at low water.

In rounding Cape Virgins, unless the wind be easterly or southerly, I should recommend a ship to pass within one mile and a half of the cape, and steer S. by E. by compass until Dungeness bears S. W. *mag.*; then to edge away round the latter point, and afterwards the coast is clear to Cape Possession. In moderate weather ships may anchor any where between Dungeness and Cape Possession. The bottom is of good holding ground, and quite clean. At from three to five miles from the coast, the depth will be from 15 to 20 fathoms. Anchorage.

We know nothing of the Fuegian shore, or south side of the

* By chronometrical observation 68° 17′ 46′.

entrance. The Beagle, in beating in, made a board for 8 miles to the southward of Dungeness, and had 40 fathoms; but I believe the coast to be of shoal approach, and to be lined by a bank that is connected to the extensive reefs which project from Cape Orange.

Cape Possession. CAPE POSSESSION is a cliffy headland on the north shore, and will be seen opening round Dungeness, on the magnetic bearing of S. 86° 30′ W.; the distance between them is twenty miles: at ten or twelve miles to the west of Dungeness, Mount Aymond will make its appearance, bearing about N. 85° W. *mag.*

Possession Bay. POSSESSION BAY, which extends from Cape Possession to the entrance of the First Narrow, curves in to the northward round the cape and is fronted by an extensive shoal, stretching off for more than four miles from the shore, many parts of which are dry at half tide; on its south side the depth diminishes gradually, and offers good anchorage for vessels entering the strait to await the tide for passing the First Narrow.

On the western side of the bay, there are some remarkable hills of a darker green hue than others near them; I have called them the DIRECTION HILLS; because, after passing Cape Possession, they afford a good mark for approaching the Narrows, which are not visible until well across the bay; by attention also to their bearings, the shoal that extends off Cape Orange may be avoided.

Direction Hills.

Anchorage. To take up an anchorage on the bank, great attention must be paid to the soundings, which at the edge decrease suddenly; it would not be advisable to anchor in less than 10 or 12 fathoms at high water, for the tide falls 6 or 7 fathoms; but as the stream runs much weaker on approaching the edge of the bank, the nearer to it the better. A good berth for anchoring is to get the northern Direction Hill (which is dark coloured and very conspicuous) to bear S. 56° W., Mount Aymond N. 45° to 50° W., and the highest (easternmost) peaked hillock upon Cape Orange about S. S. E. (compass bearings). When the hill above noticed bears S. 56° W., and Mount Aymond between N. 50° and 60° W.,* you are in 19 or 20 fathoms, just off the edge of the bank; about half to one mile more to the northward, or north-

* These bearings are by compass; the variation of the needle is 22°½.

westward, good anchorage may be selected out of the strength of the tide.

There is, however, a more advanced situation about half a mile to the eastward of the end of the shoal, that may easily be taken up; namely, that where 14 fathoms is marked on the plan, for which the following are the bearings—the

Northern Direction Hill . .	S. 59° W.	*Mag.*
Mount Aymond	N. 43° W.	
Peak of Cape Orange . . .	S. 22° E.	

One mile more in advance to the S. W. would still be a better berth, but great care must be taken not to ground on the tail of the shoal. At about half a mile more to the eastward, the situation would be more secure.

Marks for Anchorage.

Should the distant land behind Cape Gregory be seen, which makes with a long blue level strip of land, terminating at its S. W. end with rather a bluff or precipitous fall, it is a good mark for the above anchorage. The fall, or extremity, should be visible in the space between the southernmost and central of the Direction Hills. There is also a conspicuous lump on the same land, which will be seen to the northward of the northern Direction Hill; and the Asses Ears, nearly out of sight, should be seen a little to the eastward of that part of the shore of Possession Bay where the cliffy coast commences.

Another mark for the approach to the bank, which is very good when Mount Aymond bears more westerly than N. 43° W. *mag.*, is, not to lose sight of the Asses Ears. At our anchorage in 6 fathoms, near the dry part of the bank, they were lost sight of by a rise in the land; half a mile to the southward, at the anchorage marked 11 fathoms, one of them reappeared above the land; Mount Aymond at the same time bearing by compass N 41° W. *mag.* But this rule fails to the westward, or nearer the Narrow, for the bank then trends more southerly, and the Asses Ears are visible at its edge; the west limit of this rule is, as before noticed, when Mount Aymond bears about N. 43° W. *mag.* There is, also, another remark worth attending to; which is, that, after passing Cape Possession, Mount Aymond assumes the appearance of a round obtusely-peaked hill, with a smaller elevation on each edge of its outline; which appearance is preserved until it bears

N. 50° W. *mag.*, and then the easternmost of the minor elevations gradually disappears, while the western one becomes more conspicuous.

To avoid the north shoals, do not get the North Direction Hill to bear more southerly than S. 56° W. *mag.*; and the mark for avoiding the reefs that extend off CAPE ORANGE, is not to get the same Direction Hill to bear more westerly than W. by S. ¼ S. *mag.* (for W. by S. ½ S. will just pass without the edge) until Mount Aymond bears N. 48° W. *mag.*, or the peak of Cape Orange South *mag.*, when the fair way of the First Narrow will be open, bearing S. W. by S. *mag.* The north or north-western side of the First Narrow, is a cliff, of moderate height, and makes like a flat table land. When abreast of Cape Orange, a S. S. W. *mag.* course must be steered. The tide sets right through; so that in drifting, which with the wind against the tide is the safest and best plan, there is no danger of being thrown upon the shoals.

Reef off Cape Orange.

First Narrow.

The FIRST NARROW was called by Sarmiento, Angostura de Nuestra Señora de Esperanza. He describes it very correctly to be three leagues long, and less than half a league wide, with cliffy shores; the tide running strong; the depth more than 50 fathoms sand and pebbles (callao); and on the north shore there is a beach of shingle.* In this part, however, as discretion must be the best guide, it will be necessary merely to state the dangers that exist. To the north of POINT DELGADA (meaning thin or slender) the shore is fronted by extensive shoals that dry at half tide, and which, being dry when Sarmiento passed, was called by him POINT ANEGADA (drowned land); these should not be approached. The south shore also, for nearly five miles to the west of Cape Orange, has a shoal off it, but it does not extend to a great distance from the beach; beyond this it is not safe to approach either shore within half a mile, for each is fronted by a bank that dries at low water. The western end of the Narrow on the north shore, Sarmiento's POINT BARRANCA (meaning a cliff) has a considérable reef off it, upon which there is a very large quantity of kelp.

Point Delgada

Point Barranca.

Directions.

After emerging from the Narrow, the ship should be allowed

* Sarmiento, p. 272.

to drift with the tide, the course of which is S. S. W., for at least three miles, before hauling up for Cape Gregory, in order to avoid the ripplings which rage furiously on each edge of the bank. I have passed twice through them for the sake of proving the depth, and once anchored within them, which gave me an opportunity of ascertaining the rise and fall of the tide; but it only altered twelve feet: the stream or current, however, set at three and four knots the whole tide, and there was scarcely five minutes slack water. It is an anchorage that ought not to be taken up without the greatest necessity, for the ripplings break over the deck, and the security of the vessel is very doubtful.

Rise and fall of the tide.

Point Barranca is a flat-topped sand hill, the position of which being given in the chart, its bearing will indicate the situation of the ship: the point on the opposite side Sarmiento called POINT BAXA (low).*

After reaching thus far, steer W. S. W. by compass, until abreast of some remarkable peaked hillocks on the north shore; where, if necessary, anchorage may be had out of the tide, in from 6 to 10 fathoms; at any part of the northern side of the bay the anchorage is good, upon a clay bottom covered with broken shells: the lead brings up nothing but shells, underneath, however, it is of clay and good holding ground.

Anchorage.

It is best to anchor near the shore on account of the tide, which ripples very much all over the centre of the bay.

The peaked hillock above mentioned is certainly Sarmiento's Point Nuestra Señora del Valle; to the eastward of it is St. Jago Bay; and to the westward his Bay of the Eleven Thousand Virgins.† When abreast of the point, the land and bay to the north of CAPE GREGORY will be easily distinguished; the former will be seen first, and resembles an island; for the land of the bay is flat and low: but a very conspicuous hummock will also be seen half way between it and the flat table land, as soon as the land of the cape becomes visible. The hummock is marked on the chart.

Cape Gregory.

The extremity of Cape Gregory bears from the western end of the First Narrow, S, 73° W, (S. 50° ½ W. *mag.*), distant twenty-

* Sarmiento, p. 273. † Ibid, 268.

Anchorage under Cape Gregory.

two miles. The anchorage is from two to two miles and a half to the N. N. E. of the cape, abreast of the north end of the sand hills that form the headland, and at about one mile from the shore, in from 13 to 15 fathoms. The bottom is excellent, a soft but tenacious mud, which, nearer the shore, is of a stiffer quality. At low water a sand spit extends off for one-third or nearly half a mile from the shore; close to which there is 7 fathoms water. Care should be taken not to approach too near.

At the anchorage the tide turns to the south-westward, towards the cape, for two and a half or three hours before it begins to run to the westward in the Second Narrow; which should be attended to, for a ship will lose much ground by weighing before an hour or more after the tide has turned.

Situation.

Upon the summit of the land of the cape, four-fifths of a mile to the northward of the extreme point, is a remarkable bush; close to which the observations were made. The bush is in lat. 52° 38′ 3″ S. and lon. 70° 9′ 51″ W. The variation of the compass 23° 34′ E.

The country abounds with guanacoes and ostriches, and the valley, two miles to the westward of the cape, is frequently the

Patagonian Indians.

abode of the Patagonian Indians; but their principal residence is upon the low land at the back of Peckett's Harbour and Quoin Hill, where guanacoes are more abundant, and the country more open. Ships coming from the southward also are seen by them at a great distance, so that by the time she reaches Cape Gregory they have already arrived to meet her. They do not, however, see ships coming from the eastward so easily, and we were, on two occasions, two or three days at the anchorage before it was known that we were present.

They are very friendly, and will supply guanaco meat at a small price. They are fond of beads and ornaments, but particularly of knives, and the larger they are the better. Swords are held in high estimation by them, as well as lead for the purpose of arming their *bolas*, an instrument used to entangle the legs of the guanacoes and ostriches.

They also barter their mantles and skins; and are fond of sugar, flour, matté (the Paraguay tea), tobacco, and horse gear, particularly bits. For spirits they are very eager, but are contented

with it in a diluted state. At our last interview they asked for muskets, powder, and ball; the use of which they have learned from two Portuguese seamen, who left an English sealing vessel to reside with them; but these were not given, and it is to be hoped that such weapons will not be put into their hands.

The SECOND NARROW is about ten miles long; and, with a favourable tide, which runs five or six knots, is very quickly passed. With an adverse wind a ship will easily reach an anchorage to the north of Elizabeth Island. Second Narrow.

The north side of the Second Narrow is very shoal, and ought not to be approached, for the ground is also very foul.* There are two or three very inviting bights for a ship that is caught with the tide, but it is not advisable to anchor in them: she should rather return to the anchorage off Cape Gregory.

SUSANNAH COVE is where Sarmiento anchored in 8 fathoms, low water, half a league from the land, good bottom; but, as it was exposed to the strength of the tide, he shifted to another anchorage about half a league west of Cape Gregory, where the anchor was dropped in 8 fathoms, but the vessel tailing on the edge of the shoal in 3 fathoms, he was glad to make his escape.† Susannah Cove

The south shore of the Second Narrow, which Narborough called the SWEEPSTAKES FORELAND, is composed of cliffs, and is, I believe, of bold approach. The projecting head in the centre is Sarmiento's St. Simon's Head,‡ and the western end he named Cape St. Vincent, from its resemblance to that of Spain. To the southward of the eastern point of this head, Point St. Isidro,§ which is a low sandy point, is Fish Cove, where Bulkely and Cummings anchored their boat: and Sarmiento says "We anchored behind a point before noticed, called Santisidro, in a small bay, of low land and sandy beach, in 10 Sweepstakes Foreland. Fish Cove.

* Sarmiento says, "y sea aviso que toda la Bahía que está come dixe desde la *Bahía de San Gregorio* y *Punta de Nuestra Señora-de-Gracia* para tierra, es placel de dos hasta quatro brazas. No se arrime á esta Costa el Navío que por aquí embocare, porque correrá riesgo; ántes surja á media canal, ó á la ménos no surja de doce brazas abaxo, porque en siendo en ocho, á un cumplidor de dos bateles dará en tres y en ménos, y de baxa mar quedará en seco."—Sarmiento, p. 260.

† Ibid, p. 256 and 257. ‡ Ibid, p. 257. § Ibid, p. 263.

Fish Cove.

fathoms, at a quarter of a league from the shore, but upon veering cable the vessel was in 7 fathoms; so that fearing she would be left dry, from the great rise and fall of the tides hereabout, we shifted farther out to 15 fathoms, but the anchor dragged, and we subsequently came to in 9 fathoms, sandy bottom; where, at low water, the depth was 6 fathoms."*

Oazy Harbour.

Three miles to the westward of Cape Gracia, the western end of the Second Narrow on the north side, is OAZY HARBOUR, so called by Narborough: it is a secure place for small vessels. The entrance is nearly two miles long, and too narrow for large ships, unless the weather be moderate, when they might drop in or out with the tide: the depth inside is from 3 to 10 fathoms. There is neither wood nor water to be got, and therefore no inducement to enter it; a plan of it was made. It is described by Sir J. Narborough,† and Cordova calls it Bird Bay (Ensenada de los Páxaros).‡

Peckett's Harbour.

Narborough's PECKETT'S HARBOUR, or, as Sarmiento called it, St. Bartholomew's Bay, is eight miles to the west of Cape Gracia, and, although very shoal, offers a good shelter, if required, for small vessels; but the space is very confined; the anchorage without is almost as safe, and much more convenient. The distance between the two points of entrance is nearly two miles, but from the north-east shore to the small island off the south-west point, the whole space is a shoal, upon the greater part of which the sea breaks in a moderate breeze.

The entrance is between the south-west point and the island, and is rather more than one-fifth of a mile wide. Half a mile outside, the anchorage is good in 7 fathoms: shoal ground extends for a quarter of a mile off the point.

Bay north of Elizabeth Island.

The bay, which is formed by Peckett's Harbour and Elizabeth Island, is extensive and well sheltered, with an easy depth of water all over, between 5 and 7 fathoms; the nature of the bottom is clay, and offers excellent holding ground. In the centre is a patch of kelp; but it is not known whether the depth is shoaler in that part, or whether it proceeds from the bottom being rocky.

Tides.

The tide is not strong to the westward of the north end of

* Sarmiento, p. 267. † Narborough, p. 62 and 124.
‡ Ultimo Viage, p. 107.

Elizabeth Island;* but runs with considerable velocity in the deep channel between it and the Second Narrow. To the southward of the island the stream divides into two directions, and very soon loses its strength; one sets down the south side of the island, and the other between the islands of Santa Martha and Magdalena. This is the flood; the ebb sets to the northward. The ebb and flow is regular, high water at the full and change being at about twelve o'clock. Tides.

There is good anchorage, out of the strength of tide, at a mile to the north of Point San Silvestre; it is convenient for a ship to leave with the intention of passing round Elizabeth Island. I conceive this to be the most difficult part of the entrance of the Strait of Magalhaens, for the tide sets across the passage with some strength.

The passage to the west of the island is clear, and without danger, by keeping in the middle part of the channel; but in passing down the south side of Elizabeth Island the shore should be kept close to, to avoid being thrown upon the islands of Santa Martha and Magdalena,† although I believe there is plenty of water between them, for Sarmiento anchored there in 15 fathoms;‡ as well as to clear the shoal that extends off the south-west end of the latter island,§ upon which we did not find less water than 5 fathoms upon any part; but the ground being irregular, and much kelp strewed about, it is not safe to trust too much to appearances. On all occasions it is advisable to avoid passing through kelp, for although it frequently shoots up from 10 and even 20 fathoms, yet wherever the bottom is rocky, there it is to be found. The presence of this vegetable renders the few dangers that exist in the navigation of the strait of little consequence, for it serves as a buoy to mark the existence of them, and it is only by a careless look out that a ship can be placed in a Directions. Avoid kelp.

* Elizabeth Island was so named by Sir Francis Drake. Sarmiento passed its north-east end, and, considering it a part of the Continent, called it Point San Silvestre. (Sarmiento, p. 255.)

† The Islands of Santa Martha and Magdalena, so named by Sarmiento (p. 254), have since been called by other names: the former St. Bartholomew, the latter St. George's, also Penguin Island. (See Narborough's Voyage, p. 62.)

‡ Sarmiento, p. 254.

§ Hawkesworth, v. I, p. 382, and Ultimo Viage, Appendice, p. 23.

dangerous situation. Another advantage in kelp is, that by its drift it shews both the direction and velocity of the tide.

Laredo Bay. LAREDO BAY offers good anchorage in the centre and towards the north side, and particularly in the north-west corner. Off the south point is a large patch of kelp, among which the ground is shoal and foul.

At Laredo Bay wood may be procured, and there is a fresh water lake of a mile in diameter at about half a mile behind the beach, much frequented by wild ducks.

For the purpose of anchorage only, the bay need not be entered; because a very good and secure birth may be found at from one to two miles off it, in 10 to 13 fathoms, having the south-west extremity of Elizabeth Island on with, or a little open of, the trend of Cape Negro, which is Byron's Porpesse Point.*

Cape St. Vincent to Cape Monmouth. We know scarcely any thing of the south side of St. Philip's Bay, or of the coast between Cape St. Vincent and Cape Monmouth. The latter is a lee shore, and should not be approached when the wind is northerly, for there seems to be no harbour or shelter, and the anchorage must be much exposed.

Opening behind Sweepstakes Foreland. Two deep inlets were seen behind Sweepstakes Foreland, from the summit of the table land near Cape Gregory, one of which may probably insulate it, but this was not ascertained.

Coast to the south of Cape Negro. Between Cape Negro and Sandy Point, which is Sarmiento's Catalina Bay,† good anchorage may be had, from one to two miles and a half from the shore. Here the country begins to be thickly wooded, and to assume a very picturesque appearance, particularly in the vicinity of Sandy Point.

Sandy Point. SANDY POINT, Sarmiento's Cape de San Antonio de Padua, projects for more than a mile from the line of coast, and should not be passed within a mile. A shoal projects off it in an east direction *(mag.)*: the mark for its south edge is a single tree, on a remarkable clear part of the country (a park like meadow) near the shore on the south side of the point, in a line with a deep ravine in the mountain behind. One mile and a half from the point, we had no bottom with 18 fathoms.

Anchorage. To the southward of Sandy Point, as far as Point St. Mary,

* Hawkesworth, i. p. 36 † Sarmiento, p. 265.

good anchorage may be had at three quarters of a mile from the shore, in 11 and 12 fathoms; sand and shells over clay. At the edge of the kelp, which fronts the shore, there is 5 and 6 fathoms; so that, with the wind off shore, a ship may anchor or sail along it very close to the coast, by keeping outside the kelp. The squalls off the land are very strong, sometimes so much so as to lay a ship on her broadside. It is not prudent therefore to carry much sail in coasting this part; and it is necessary to have the quarter boats secured with gripes, because the wind, for a moment, blows with the force of a hurricane. These land squalls are denominated by the sealers "williwaws."

Squalls off the high land.

Point St. Mary.

Point St. Mary, in lat. 53° 21′ 40″, is twelve miles and a half to the south of Sandy Point, and may be known by the land trending in to the southward of it, forming Fresh Water Bay. It has also a high bank close to the beach, with two patches bare of trees, excepting a few dead stumps. All the points to the northward are low and thickly wooded. As the bay opens, the bluff points at its south end become visible. There is also a remarkable round hill a short distance behind the centre of the bay, and a valley to the south of it, through which a river flows and falls into the bay.

Freshwater Bay.

It is convenient for wooding at, but from the river being blocked up by much drift timber, watering is difficult; the proximity, however, of Port Famine renders this of no material consequence.

When the wind is from the northward, a swell is thrown into the bay; but no danger need be apprehended from its being open to the eastward, for the wind seldom blows from that quarter, excepting in the winter, and then rarely with great strength. If it does, the holding ground is good, and with good gear there is no danger.

Directions for entering.

In standing into the bay from the northward, keep within three quarters to half a mile from the coast, in 10 or 11 fathoms; and, passing Point St. Mary, steer on towards the bluff points at the south end of the bay, until the south pitch of the Centre Mount bears W. S. W., when you will be clear of the kelp that extends off the north side of the bay; among which I believe there is a sufficiency of water, but the ground is foul: round its edge there is 6 and 7 fathoms. Having the mount bearing as above, steer

Anchoring. for it, or a little to the south of it, and anchor in 9 fathoms, sandy mud over clay, which will be with the following bearings:

Point St. Mary . . .	N. 15° W.	*Mag.*
Outer trend . . .	N. 9° W.	
Centre Mount (south pitch) .	S. 74°½ W.	
Entrance of River . .	S. 35° W.	
South bluff . . .	S. 21° E.	

A good berth may be had much nearer the shore in 6 fathoms, towards which the depth gradually decreases. If the anchorage is used merely as a stopping place, the first is best; for the wind near the shore is apt to flaw and veer about.

Between Freshwater Bay and Point Santa Anna the coast is very bold, and so steep too as to offer no anchorage, excepting in the Rocky Bay. bay that is formed by the reef off Rocky Point; but it is small and inconvenient to weigh from, should the wind be southerly.

Should the day be advanced, it is better to anchor in Freshwater Bay than run the risk of being underway all night; unless it be in the summer, with moonlight and the weather likely to be fine; in this climate, however, the latter is very doubtful, for weather changes so suddenly that no dependance can be placed upon appearances.

Point Santa Anna. Point Santa Anna will appear, on standing down near the coast, to be the termination of the land; it is a long point extending into the sea, having at the extremity a clump of trees. It bears from Cape Valentyn S. 47½° W. *mag.* On approaching it, the the distant point of Cape St. Isidro will be seen beyond it; but there can be no doubt or mistake in recognising it.

Tides. Along the whole extent of the coast, between Point Santa Anna and Elizabeth Island, the flood sets to the southward and the ebb to the northward, and it is high water about 12 o'clock at full and change. The variation is about 23° west. The strength of the tide is not great, but frequently after a southerly wind there is, in the offing, a current to the northward independant of the tide. In winter the tides occasionally rise very high, and on one occasion, in the month of June, nearly overflowed the whole of the low land on the west side.

Port Famine. Port Famine.—Standing into Port Famine, pass round Point

Santa Anna, if with a leading wind, at one fifth of a mile, in 17 fathoms; but if the wind is scanty, do not get too near on account of the eddy tide, which sometimes sets towards the point. Steer in for the bottom of the bay, for the summit of Mount St. Philip, keeping it over the centre of the depth of the bay; that is, half way between the rivulet (which will be easily distinguished by a small break in the trees) and the N. W. end of the clear bank on the west side of the bay. This bank being clear of trees, and covered with grass, is very conspicuous. Keep on this course until the mouth of Sedger River is open, and upon shutting in the points of its entrance, shorten sail and anchor in 9, 8, or 7 fathoms, as convenient. The best berth, in the summer, is to anchor over towards the west side in 9 fathoms, with Cape Valentyn in a line with Point Santa Anna; but in the winter season with N. E. winds, the best berth is more in the centre of the bay. Port Famine. Anchorage.

The strongest winds are from the S. W. It blows also hard sometimes from South, and, occasionally, a fresh gale out of the valley, to the south of Mount St. Philip. Unless a long stay be meditated, it would be sufficient to moor with a kedge to the N. E.; the ground is excellent all over the port, being a stiff tenacious clay. Landing may be almost always effected, excepting in easterly gales, on one side or the other. There is fire wood in abundance on the beaches, and wells, containing excellent fresh water, were dug by us at the N. W. extremity of the clear part of Point Santa Anna, on the bank above the third, or westernmost, small shingle bay. The water of the river, as well as of the ponds, of which there are many upon the flat shore of the western side of the port, is very good for present use, but will not keep, in consequence of its flowing through an immense mass of decomposed vegetable matter; but the water of the wells drain through the ground, and not only keeps well, but is remarkably clear and well tasted. Their situation is marked on the plan, and for some time our traces will not fail to show the road. Winds. Wood and water.

Our observatory, the situation of which is indicated by the stem of a tree 16 inches in diameter, placed upright about eight feet under and three above the ground, banked up by a mound, is in lat. 53° 38′ 12″ and 70° 54′. High-water at full and change Situation.

Tides at Port Famine.

at 12 o'clock; the ebb sets to the northward, and the flood to the southward; but the rise and fall is very irregular, depending entirely upon the prevalence of the winds; northerly and easterly winds causing high tides, and westerly and south-westerly low tides. The variation is about 23° 30′.

Tides from Cape Virgins to Elizabeth Island.

Of the tides in Possession Bay and the First Narrow, we have had too little experience to enable us to give a very clear account. I shall therefore here confine myself merely to such observations as may be of service to the navigator.

To the south-east of Cape Possession it is high water at 4^h 56′ before the moon's passage; but the stream of tide continues to run in until two hours after the water has ceased to rise: the easterly tide commences at 2^h 56′ before the culmination.

The same is the case as far as, and even in, the First Narrow; excepting in the times. In the centre of Possession Bay, near the bank, it was high water at 3^h 51′ before the moon's passage, and the tide turned to the eastward at noon, or 0^h 39′ after the passage. This observation was made on the day of full moon. The rise was twenty-eight feet, but, at an anchorage more to the westward, near the south-west end of the bank, it rose thirty-five feet, and ran at the rate of six knots and a quarter. In the First Narrow the eastern tide commences at noon (full and change).

At the anchorage in Gregory Bay the easterly tide commenced twenty minutes earlier than in the First Narrow. In the Second Narrow the tides are two and a half or three hours later before they turn (see p. 24). To the westward of the Second Narrow high and low water take place regularly with the set of the tide, and the former occurs, at full and change, within a few minutes of noon. The rise and fall is inconsiderable; the greatest we experienced was eight feet.

SECTION III.

Strait of MAGALHAENS — Dawson Island — Admiralty Sound, the Gabriel, Cockburn, and Barbara Channels.

Useless Bay was examined in the hope of its communicating with the supposed St. Sebastian Channel, of the old charts; but it proved to be terminated by low land, reaching, perhaps, across the country towards Cape St. Espiritu Santo. It is more than 30 miles deep and from 12 to 20 wide, and entirely exposed to the S. W. The north shore affords no shelter, but on the south there is an indentation of the coast line under the hill called Nose Peak, that may possibly afford a sheltered anchorage. Useless Bay.

The termination of the flat table ridge, extending to the the N. E. from Point Boqueron, a name of Sarmiento's, meaning —an opening, is abrupt and very precipitous.

This country abounds with guanacoes, and the Indians are probably more dependant on hunting than fishing for their subsistence, for we observed their fires upon the hills, at a distance from the coast.

Dawson Island, which fronts Useless Bay, and the deep inlet called Admiralty Sound, is forty-six miles long and about twenty broad. Its northern extremity, Cape Valentyn, is low, but becomes visible in passing down the opposite shore, between Sandy Point, and Freshwater Bay. Mount Graves, however, is seen from a much greater distance. On the western side of the Island there are but two places in which vessels can anchor; viz., Lomas Bay and Port San Antonio, but both being on a lee shore, they are not to be recommended. Lomas Bay is a deep Dawson Island

Lomas Bay. bight, sufficiently sheltered from S. W., but quite exposed to the north-west and westerly winds, which, during the winter, are the most prevalent.

Lieutenant Graves remarks that Lomas Bay, although only tolerably sheltered from the prevailing winds, would, from its extent (six miles deep) and nature of the bottom, a stiff blue clay, afford good shelter for vessels of any draft or burden. The appearance of the shores also seem to favour such an opinion, for scarcely any drift wood was found thrown up, even in those parts which were most exposed to the surf. Wood is sufficiently plentiful and water very abundant. This Bay appears at certain seasons to be much resorted to by the Indians, for upwards of twenty wigwams were seen near the beach.

Between Lomas Bay and Cape St. Valentyn, there is no landing, even for a boat, excepting at Preservation Cave, which affords only just room enough to beach one of small size.

Port San Antonio. Port San Antonio, which is situated about the centre of the west coast, opposite to San Nicholas Bay, has the appearance of being well sheltered, but during a fortnight that we spent there we experienced so much inconvenience, and even risk, from the violence of the squalls, that we were obliged to secure the vessel with three anchors. We also found some difficulty in leaving it, on account of the baffling winds, as well as the narrow width of the passage, for we went out by the north entrance.

This place received the distinguishing epithet of *Port* from Cordova, and is described by him to be three quarters of a mile wide; instead of which, it is scarcely one third of that width, and deserves the name only of a Cove. It is a very unfit place for a ship, or, indeed, for any vessel to enter, especially when there are so many much better places on the opposite or continental shore.

Anchorage. The anchorage is formed by a channel within the islands, North Island and San Juan Island, in which, particularly at the north end, are several islets. The anchor may be dropped in from 10 to 15 fathoms, off a small beach in Humming-Bird Cove, which is situated on the inner side, and about half a mile from the south end, of San Juan Island. From the west end of North Island a reef extends off for a quarter of a mile, and to the

southward are two small islets, which may be passed on either side. North Island is separated from San Juan Island by a narrow and impassable strait. Port San Antonio.

The south entrance is, perhaps, the best, although with a northerly wind the northern should be preferred. There is no danger but what is evident; the ground, however, is not very clean until you reach Humming-Bird Cove.

The south entrance is tolerably wide: in entering, haul round the south point of San Juan Island, for near the shore of the eastern side there is a rock under water. Opposite to Humming-Bird Cove, in a small bight, there is a stream of fresh water.

PORT VALDEZ is a deep inlet, fronting W. N. W., and not at all inviting to enter; from the appearance of the hills, squalls must be very frequent, and blow with the greatest violence; for trees are seen torn up by the roots, in long lines, evidently caused by the destructive force of the wind. Port Valdez.

The ebb tide sets to the north through the channel.

The GABRIEL CHANNEL separates Dawson Island from the Tierra del Fuego. It is merely a ravine of the slate formation, into which the water has found its way and insulated the island. It extends precisely in the direction of the strata, with almost parallel shores. It is twenty-five miles long and from half a mile to one mile and a half wide; the narrowest part being in the centre. The north shore is a ridge of slate, rising abruptly to a sharp edge, and then as abruptly descending on the opposite side where it forms a valley; which, had it been a little deeper, would, have been filled by water and have become another channel like the Gabriel. Gabriel Channel.

The south side of the Gabriel Channel is formed by a high mass of mountains, probably the most elevated land in the Tierra del Fuego. Among many of its high peaks are two more conspicuous than the rest, MOUNT SARMIENTO, and MOUNT BUCKLAND. The first is 6,800 feet high, and, rising from a broad base, terminates in two peaked summits, bearing from each other N. E. and S. W., and are about a quarter of a mile asunder. From the northward it appears very much like the crater of a Volcano; but when viewed from the westward, the two peaks Mount Sarmiento.

Mount Sarmiento.

are in a line, and its volcanic resemblance ceases. It is noticed by Sarmiento as well as by Cordova, in the Journals of their respective voyages. Sarmiento calls it *Volcan nevado* (the Snowy Volcano.*)

It is the most remarkable mountain in the strait; but, from the state of the climate and its being clothed with perpetual snows, it is almost always enveloped in condensed vapour. During a low temperature, however, particularly with a N. E. or S. E. wind, when the sky is often cloudless, it is exposed to view, and presents a magnificent appearance. From its great height and situation it served our purpose admirably to connect the points of the survey. It was seen, and bearings of it were taken, from the following distant stations, viz. Elizabeth Island, Port Famine, Cape Holland, Port Gallant, and Mount Skyring, at the south entrance of the Barbara Channel.

Mount Buckland.

Mount Buckland is, by estimation, about 4,000 feet high. It is a pyramidal block of slate, with a sharp pointed apex, and entirely covered with perpetual snow.

Between these mountains the summit of the range is occupied by an extensive glacier; the constant dissolution of which feeds the innumerable cascades that pour large bodies of water down the rocky precipices overhanging the south shore of the Gabriel Channel.

At the extremity of the channel is Fitton Harbour; and on the opposite side of Cape Rowlett are Port Cooke and Brookes Harbour.

Port Cooke.

Port Cooke is a very convenient and useful port. It is sheltered by a high wooded island. The anchorage is off the rivulet on the west side, in 9 fathoms.

Brookes Harbour.

Brookes Harbour, like Fitton Harbour, is spacious, but not good as a port, for the water is deep and the anchorages, being in coves, are not easy of access without the labour of towing.

Admiralty Sound.

Admiralty Sound extends for forty-three miles to the S. E., into the land of Tierra del Fuego. It is seven miles wide at the entrance and gradually diminishes to three. On its north side the shore is very straight, but the south side has two deep inlets,

* Sarmiento, p. 224.

Ainsworth and Parry Harbours. It terminates in a bay; affording anchorage in from 10 to 15 fathoms, but very much exposed to N. W. winds, which, I should think, from the funnel shape of the Sound, would blow with furious strength. On the north side of the bay is Mount Hope, a lofty insulated mass of rock, but to the south of it lies a considerable track of low land; over which the view was unobstructed for a considerable distance and was bounded by a distant mountain, in the direction of the position of Captain Basil Hall's Volcano, in lat. 54° 48′, lon. 68° 00′. If the Volcano exists, it is most probably the above mountain, but we saw nothing to indicate the appearance of its being in an eruptive state. It is placed on the Chart from Captain Hall's authority. Admiralty Sound. Volcano seen by Capt. Hall.

In AINSWORTH HARBOUR there is anchorage at the bottom, on the west side. The mountains at the back of the harbour are capped by an enormous glacier that descends into the sea. Ainsworth Harbour.

PARRY HARBOUR is about five miles deep and three wide; at the entrance, on the west side, are two coves, either of which offer a convenient stopping place for a small vessel. Parry Harbour.

The eastern side of DAWSON ISLAND is very much intersected by deep inlets, particularly Brenton Sound, and its termination, Port Owen, which very nearly communicates with Lomas Bay: the dividing land being low and marshy.

The large central island in Brenton Sound, WICKHAM ISLAND, is high, and there is a remarkably sharp-peaked hill upon it, which is seen in clear weather from Port Famine. Wickham Island.

NON-ENTRY BAY was not examined; it appeared to offer snug anchorage; the depth between the points of entrance was from 9 to 19 fathoms. Non-entry Bay.

FOX BAY. The bottom and south side are shoal, but the banks are indicated by kelp. A rapid stream of water empties itself into the bay The anchorage in Fox Bay is in from 3 to 5 fathoms. The north head, Steep-Tree Bluff, is of bold approach: within twenty yards of the shore the depth is 9 fathoms. Fox Bay.

HARRISS BAY is an indenture of the coast, two miles deep. Harriss Bay.

WILLES BAY, off which is OFFING ISLAND, by which it may be known, although of small extent, affords excellent anchorage, upon a mud bottom, in 9 or 10 fathoms. The tide rises and falls Willes Bay.

Willes Bay. about six feet. It is high water, at full and change, about 12 o'clock. At the bottom of Willes Bay is Philip Gidley Cove, where a small vessel may lie in perfect security. There are not less than 3 fathoms in the entrance, and inside, in most parts, there is the same depth.

Cape St. Valentyn. Cape St. Valentyn is the northern extremity of Dawson Island. It is low, and has a small hummock near the point. Between the two points which form the cape, there is a slight incurvation of the shore, which would afford shelter to small vessels from any wind to the southward of east or west; but the water is shoal, and the beach, below high water mark, is of large stones. The coast to the south-west is open, and perfectly unsheltered; is is backed by cliffs: the beach is of shingle.

Magdalen Sound. The opening of Magdalen Sound was first noticed by Sarmiento.* Coming from the northward, it appears to be a continuation of the strait, and it is not until after passing Cape San Isidro that the true channel becomes evident. It extends in a southerly direction for twenty miles, and is bounded on either side by high and precipitous hills, particularly on the west shore. The eastern entrance of the sound, Anxious Point, is a low narrow tongue of land, with an island off it. Opposite to it is a steep mountain, called by Sarmiento the Vernal (or summer-house), from a remarkable lump of rock on its summit.†

Hope Harbour Under this mountain is Hope Harbour; a convenient stopping place for small vessels bound through the sound. The entrance is narrow, with kelp across it, indicating a rocky bed, on which we had not less than 7 fathoms. Inside it opens into a spacious basin, with good anchorage in 4 fathoms, sheltered from all winds, excepting the squalls off the high land, which must blow with furious violence during a south-westerly gale. This little port is much frequented by Indians, for we found many wigwams on the south side, some of which were occupied by the women and children of a tribe, the men being absent on a fishing excursion.

To the south of Hope Harbour, between the Vernal and Mount Stokes's Inlet. Boqueron, is Stokes's Inlet. It is three miles long, with deep

* Sarmiento, p. 220. † Ibid, 219, and Ultimo Viage, p. 121.

water all over: there is a Cove on its north side, but neither so good nor so accessible as Hope Harbour. In the entrance of the inlet are three islets (Rees Islets). Stokes's Inlet.

Mount Boqueron, the extremity of which is Squally Point, is a very precipitous and lofty mountain, about 3000 feet high, and having on its summit three small but remarkably conspicuous peaks. It is the eastern head of Stokes's Inlet, and forms a part of the western shore of Magdalen Sound. The squalls that blow off this during a south-west gale are most furious, and dangerous unless little sail be carried. On one occasion our decked sailing boat was seven hours in passing it. The sound here is not more than two miles and a half wide. On the opposite shore, within Anxious Point, is an inlet extending to the south-east for two or three miles, but it is narrow and unimportant. Mount Boqueron.

Sholl Bay is a small bight of the coast line, five miles to the south of Squally Point. There is a reef off it, the position of which is pointed out by kelp. Sholl Bay.

On the opposite shore is Keats Sound. It extends to the south-east for six or eight miles, and is between four and five miles wide. Keats Sound.

In the centre of Magdalen Sound, abreast of the above opening, is a rocky islet; and at a short distance to the southward, on the western coast, is a bay and group, called Labyrinth Islands, among which small vessels may find good anchorage. Labyrinth Islands.

Transition Bay is deep, and of little importance. Four miles farther, at Cape Turn, the shore trends suddenly round. Here Magdalen Sound terminates, and Cockburn Channel commences. Transition Bay.

On the opposite shore, to the south of Keats Sound, there are no objects worth noticing, excepting Mount Sarmiento, which has been already described, page 35, and Pyramid Hill, which was found to be 2500 feet high.

The bottom of Magdalen Sound is six miles wide, but at Cape Turn the channel narrows to two miles, and in one part is not more than one mile and two-thirds wide. The south shore is much broken, and there are many sounds penetrating deeply into the land, which, in this part, according to Captain Fitzroy's survey of Thieves Sound, is seven miles wide. Eleven miles more

to the westward, at Courtenay Sound, the width of the peninsula is not more than three miles.

Warp Bay. WARP BAY, although exposed to Southerly winds, is a convenient stopping place:—a plan was made of it.

Stormy Bay. STORMY BAY is a very wild unsheltered place, unfit for any vessel to stop at. At the anchorage the water is deep, 17 to 20 fathoms, and the bottom rocky. The Bay is strewed over with shoals, the existence of which is marked by kelp: these narrow the channel so much as to render the entrance and exit both intricate and difficult for any but a small and handy vessel.

Park Bay. PARK BAY is both very snug and secure, with good anchorage in 12 fathoms, sand and mud. It has the same disadvantage as Stormy Bay, in being on the lee side of the channel, and is, therefore, difficult to leave. There is, however, here more room to beat out, and no dangers to encounter but what are visible. At the N. W. angle of the bay is a narrow isthmus, not more than 500 yards across, separating it from Mercury Sound, which was not examined. It is laid down from an eye sketch.

In working down the channel, the south side should be preferred, as it is a weather shore, and seems to be better provided with coves and harbours to anchor in.

King and Fitzroy Islands. Kirke's Rocks. KING AND FITZROY ISLANDS in mid channel, are of bold approach; as are also KIRKE'S ROCKS more to the westward.

Tides. The flood tide sets to the southward, or to seaward, but was not found to run with sufficient strength to benefit or impede a vessel beating through. The rise and fall is also inconsiderable, not being more than 6 or at most 8 feet at spring tides.

Prowse Islands. There are several anchorages among the PROWSE ISLANDS, which are very numerous, and skirt the coast for several miles. Behind them the land trends in and forms a deep sound. The Adelaide Schooner anchored in a bay on the north side of one of the Islands, opposite to Barrow Head, in 6 fathoms; but there are many places of a similar nature, equally convenient and secure. A vessel, in want of anchorage, should hoist a boat out and wait in the offing until one answering the purpose be found. Entering these deep-water bays, a boat should always be hoisted out, and a hawser kept ready to make fast to the shore. It will be frequently necessary to tow up to the head of the har-

bours; for, from the height of the land, the wind generally fails, or becomes baffling.

The distance across the channel, between Prowse Islands and Barrow Head, is scarcely one mile and a half.

Dyneley Sound extends for more than nine miles in a north-west direction into the interior of Clarence Island. On the west side of its entrance is a group of islands, affording several anchorages, which the chart will point out. One of them, Eliza Bay, offers shelter and security from all winds. The bottom of Dynely Sound was not examined. Dynely Sound.

Melville Sound, which forms the embouchure of the Barbara and Cockburn channels, is very extensive, and is completely filled with islands. Some of them are of large size, and all are of the most rugged and desolate character. The offing is strewed with clusters of rocks: of these the East and West Furies are the most remarkable, as well as the most important; for the passage into the Cockburn Channel lies between them. The former are very near the land of Cape Schomberg. The West Furies bear from the Tower Rock, off Cape Noir, N. 84° E. twenty-five miles; and S. 30° W. eleven miles from Mount Skyring. The Tussac Rocks, which are two in number, bear from the West Furies N. 73° E., four and a half miles; and in a line between the East and West Furies, three miles from the latter, and two from the former, is a rock standing alone. It bears from Mount Skyring S. 12° W. twelve miles and a half. To avoid it, in entering with a westerly wind, pass near the West Furies, and steer for the Tussac Rocks. Melville Sound. East and West Furies. Tussac Rocks.

After passing these, there are no dangers, that we know of, in the entrance of the Cockburn Channel. A reference to the plan will shew every thing else that need be noted.

Mount Skyring is a very prominent object. It rises to a peak to the height of 3,000 feet; and, being visible for a considerable distance, was useful in connecting the triangulation of the strait with that of the outer coast. It was seen from Field Bay, at the north end of the Barbara Channel; and, from its summit, Captain Fitzroy obtained a bearing of Mount Sarmiento. Its summit is in lat. 54° 24′ 44″ and long. 72° 7′ 40″. The variation is 25°. Mount Skyring. Situation.

South entrance of the Barbara Channel.

The southern entrance of the Barbara Channel is so very much occupied by islands and rocks, that no direct channel can be perceived. The chart must be referred to as the best guide for its navigation. For small vessels there is neither danger nor difficulty; there are numerous anchorages that they might reach without trouble, and that would afford perfect security.

The land hereabouts is also described in Captain Fitzroy's published views of the sea coast of Tierra del Fuego, which contain excellent views of the land from Cape Pillar to its eastern extremity at Cape Diego. Section VII. contains the description of the coast, and references are therein made to the views of the land in Captain Fitzroy's work.*

Magill's Islands. Tom's Harbour.

Among MAGILL'S ISLANDS there are several coves and anchorages. TOM'S HARBOUR is good and well sheltered, excepting from the violent squalls off the high land, which are so frequent every where among the Coves of Tierra del Fuego.

For Sealing vessels, however, it is more safe and secure than Fury Harbour, the place they usually frequent. Every thing that Fuegian Harbours afford is to be obtained in it. NORTH COVE was occupied by Captain Fitzroy in the Beagle. See Section VII.

North Cove.

Fury Harbour.

FURY HARBOUR, on the south-east side of the central Island of Magill's group, is a very wild anchorage, (see Section VII.). From its contiguity to the East and West Furies, and the Tussac Rocks, on which seals are found, it is much frequented by sealing vessels.†

Bynoe Island and Hewett Bay.

BYNOE ISLAND affords an anchorage on its north-east side; and HEWETT BAY, of which a plan was made, is a good stopping place either for entering or quitting the channel.

Browns Bay.

BROWNS BAY is more extensive, but also affords good shelter in a small cove at the north entrance, in 8 fathoms sand, among some kelp.

North Anchorage.

NORTH ANCHORAGE, for a small vessel, is tolerably secure, but not to be recommended.

* Views of parts of the sea coast of Tierra del Fuego, taken on board His Majesty's surveying vessel Beagle, 1829 and 1830.

† In the winter of 1826-27, the Prince of Saxe Coburg sealer was wrecked in Fury Harbour, and the crew saved by the Beagle's boats.

Between Hewett Bay and North Anchorage, the channel is strewed with many rocks and shoals, some of which, although covered with kelp, only shew at half-tide. Much caution is therefore necessary, and all patches of kelp should be carefully avoided. Channel between Hewett Bay and North Anchorage.

The tide, to the northward of North Anchorage, which, to the southward, was not of sufficient consequence to interfere with the navigation of the channels, is so much felt as to impede vessels turning to windward against it. Tide.

The country here has a more agreeable appearance; being better wooded with beech and cypress trees; but the latter are stunted, and do not attain a greater height than fifteen or eighteen feet. They are very serviceable for boat-hook spars, boat's masts. &c. The wood, when seasoned, works up well. Appearance and productions of the country.

Bedford Bay is a good anchorage. It is situated on the north-west side of the narrow part of the channel. Its depth is from 20 to 8 fathoms good holding ground, and perfectly sheltered from the prevailing winds. At its entrance are several patches of kelp, the easternmost of which has 4 fathoms on it. A plan was made, including the narrow channel; which, as it is a place likely to be frequented by vessels navigating the strait, will be of service. Bedford Bay.

Here, as well as throughout the Barbara Channel, the flood tide sets to the southward (Lieutenant Graves, M. S.). Tide.

Nutland Bay, having 8 and 15 fathoms over a sand and mud bottom, may be known by two small islands, Hill's Islands, which lie one mile N. N. E. from the anchorage. Nutland Bay.

Between Bedford and Nutland Bays, and, indeed, as far the Shag narrows, the channel is open, and may be navigated without impediment. There are many bays and inlets not here described or noticed, that may be occupied, but almost all require to be examined. They all trend far enough into the land to afford good shelter, but in many the bottom is foul and rocky, and the water too deep for anchorage.

The western coast, being the windward shore, should, of course, be preferred.

Field's Bay is too exposed to southerly winds to be recommended as a stopping place, unless the wind be northerly. Field Bay.

Nutland Bay is a more convenient place to start from with a view of passing the Narrows.

Broderip Bay. To the north of Nutland Bay is BRODERIP BAY; at the bottom, or northern part of it, are some good coves; but the most convenient of them is at the eastern extreme, it is called on the chart DINNER COVE. It extends to the north for about a furlong, and affords good anchorage in 10 fathoms, sufficiently well sheltered and distant from high land to be free from the mountain squalls, or willi-waws.

Icy Sound. Round Dinner Cove is ICY SOUND, a deep inlet with a glacier of considerable extent at the bottom, from which large masses of ice are constantly falling, and, drifting out, occupy the waters of the inlet. The water is deep, and the anchorage not good when there

Dean Harbour. are so many better places. DEAN HARBOUR is a considerable inlet trending in under the same glacier, which extends from the head of Smyth Harbour, to a considerable distance in the south-west If of a favourable depth it might afford good anchorage. We did not enter it.

Shag Narrows. The only navigable communication that exists between the Barbara Channel and the Strait, is that called the SHAG NARROWS, on the western side of Cayetano Island. The width of the opening is at least one mile and three quarters, but the eastern portion is so filled with rocky islets and shoals, that the actual breadth of the only navigable part at the northern end, is about 100 yards; and the widest part at the south end, scarcely half a mile. —The whole length of the passage being rather less than two miles. It is formed on the west side by a projecting point of high land, that gradually trends round to the westward; and on the opposite side by three islands, the northernmost of which is Wet

Mount Woodcock. Island: on the southernmost is MOUNT WOODCOCK, one of our stations for the Triangulation.

Between Wet Island, where the Narrows on the north side commence, and the western shore, the width is not more than 100 to 150 yards, and perhaps 300 yards long. Through this the tide sets as much as seven miles an hour; the sides of the rocks are steep to; so, that I apprehend no accident can happen to a ship in passing them, notwithstanding the want of room for manœuvring. At the south end of Wet Island, the stream of tide

divides,—one sets to the eastward, round Wet Island, whilst the principal runs through the Shag Narrows. And in the same manner, a part of the southern tide, which is the flood, after passing Wet Island, runs to the south-east, round the eastern side of Mount Woodcock. Shag Narrows. Tides.

All the space to the Eastward of Mount Woodcock is so strewed with islands and rocks, that the passage must be difficult if not dangerous.

To avoid the danger of being thrown out of the Narrows, it is only necessary to keep the western shore on board: where there are no indentations, the tide will carry a vessel along with safety. At the north end of the Narrows, on the west side, is a shelving point, on which there are 5 fathoms;—here there is an eddy, but as soon as the vessel is once within the Narrows, (within Wet Island), the mid channel may be kept. In shooting this passage, it would be better to furl the sails and tow through, for if the wind be strong, the eddies and violent squalls would be very inconvenient, from their baffling, and laying the vessel upon her beam ends; which frequently happens, even though every sail be furled. It will be necessary to have a couple of boats out, ready, either to tow the ship's head round, or to prevent her being thrown by the tide into the channel to the south of Wet Island. Directions.

If anchorage be desirable after passing the Narrows, there is none to be recommended, until the coves between Smyth Harbour and Cape Beaufort be reached. Anchorages

Of these, DIGHTON COVE is preferable. The anchorage is off the sandy beach, in 20 fathoms. Dighton Cove.

WARRINGTON COVE, the next to the north, also offers good shelter and anchorage, but both are exposed to easterly winds. Warrington Cove.

The tide in the Shag Narrows, at full and change, commences to set to the Southward at 12 o'clock. In the Barbara Channel the flood tide was found by Lieutenants Skyring and Graves, to set to seaward, or to the southward; as was also the case in Cockburn Channel. Our experience of the tides hereabouts was not sufficient to justify our making any further observation upon them.

SMYTH HARBOUR is about four miles deep, and half to one Smyth Harbour.

Smyth Harbour.

mile wide, surrounded by high land, and trending in a westerly direction. The water is deep, excepting in EARLE COVE, on the north side, where vessels might lie, if necessary; but I should think it a very wild place in bad weather.

The hills at the head are capped by glaciers that communicate with those at the head of Icy Sound. It seems possible that all the mountains between this and Whale Sound are entirely covered with a coating of Ice.

Shoal off Cape Beaufort.

Half a mile south-east from CAPE BEAUFORT is a shoal, so thickly covered with kelp as to be easily seen in passing or approaching it;—there are not more than two feet of water over its shoalest part.

To pass through the Barbara Channel, from the north, it would be advisable to stay at Port Gallant until a favourable opportunity offers; for, with a south-west wind it would neither be safe nor practicable to pass the Shag Narrows.

Prevailing Winds.

The north-west wind prevails more than any other in the western portion of the Strait, in consequence of the reaches trending in that bearing. It seems to be a general rule hereabouts that the wind either blows up or down them.

Between Cape Froward and the western entrance of the strait, the wind is generally from north-west, although at sea, or in the Cockburn or Barbara Channels, it may be in the south or south-western boards.

SECTION IV.

Strait of MAGALHAENS—From Port Famine to Cape Froward, the North Coast of Clarence Island, and from Cape Froward to the Jerome Channel.

Sedger River.

The Sedger River, which is fronted by a bar that dries at low water, can be entered by boats at half tide, and is navigable for three or four miles; after which its bed is so filled up by stumps of trees, that it is difficult to penetrate farther. The water is fresh at half a mile from the entrance, but to ensure its being perfectly good it would be better to fill the casks at low tide. The low land near the mouth, as well as the beach of Port Famine, is covered with drift timber of large size, which we found very useful, and serviceable for repairing our boats.

The river was called by Sarmiento, Rio de San Juan*. In Narborough's voyage it is called Segars River, and his boat is described to have gone up it for nine (?) miles; but was there stopped from going farther by "reason of the trunk-timber and shoaliness of the water."† Byron describes the river, which he calls the Sedger, in glowing terms, but gives rather a more flattering account of the timber growing on its banks than it deserves.‡

Voces Bay.

Voces Bay, or the Playa-de-las-Voces of Sarmiento,§ is to the southward of the south point of Port Famine, where the Sedger River falls into the sea. A ship may anchor in from 7 to 10 fathoms, off the Second River, but the shelter is not so good as in

* Sarmiento, p. 223.
† Narborough, p. 122.
‡ Hawkesworth, vol. i. p. 38.
§ Sarmiento, p. 222.

Port Famine. The Second River has a shoal entrance, but extends for some distance up the valley.

Cape San Isidro.

Between this bay and CAPE SAN ISIDRO* (Point Shut-up of Byron†) the water is too deep for anchorage, even close to the beach. The cape is the termination of the ridge, whose summit is

Mount Tarn.

MOUNT TARN, the most conspicuous mountain of this part of the strait. It is 2602 feet high by barometrical measurement. It is readily distinguished from abreast of Elizabeth Island, whence it appears to be the most projecting part of the continental shore. When viewed from the northward its shape is peaked, and during the summer it has generally some patches of snow a little below its summit; but in the winter months its sides are covered with snow for two-thirds down. From abreast, and to the southward, of Port Famine, it has rather a saddle-shaped appearance; its summit being a sharp ridge, extending very nearly for one mile, north-west and south-east, with a precipitous descent on the north-east, and a steep slope on the south-west, sides. The highest peak near its north-east end is in lat. 53° 45′ 06″, and lon. 70° 58′ 26″.

There is a low, but conspicuous rounded hillock covered with trees at the extremity of Cape San Isidro; and a rocky patch extends off it for two cables length, with a rock at its extremity that is awash at high water. It is coverd with kelp.

Eagle Bay.

EAGLE BAY, (Valcareel Bay of Cordova‡) is about three quarters of a mile deep; and its points one mile apart, bearing N. E. and S. W. The anchorage is at the head, in from 20 to 12 fathoms. There are two streams of water; but, being very much impregnated with decomposed vegetable matter, cannot be preserved long. The woods here abound with Winters Bark, of which there are many very large trees. A small reef extends for about a cable's length off the S. W. point of the bay, on which is an islet. Eagle Bay is not useful for any but a small vessel, that can be towed in, and then it will be necessary to steady her by warps, to the shore. The squalls, or willi-waws, at times, are very violent.

* Sarmiento, p. 220. † Hawkesworth, vol. i. p. 62.
‡ Ultimo Viage, p. 116.

Gun Bay, the next to the westward, although small, affords anchorage for a single vessel near the shore, at its S. W. part, in from 8 to 9 fathoms. Its points bear S. 57° W., and N. 67° E., and are distant more than three-quarters of a mile. Two rivulets discharge themselves into it, from which water is easily procured. The bottom is a stiff clay, and good holding ground. A round hill of moderate elevation, and thickly wooded, separates it from Indian Bay, the points of which bear S. 69° W., and N. 69° E., and are distant more than one mile and a quarter. From the east point the shore runs due west, curving round at the bottom towards an islet covered with trees; between which and the shore there is only sufficient depth for a boat to pass. A rock about twelve feet high lies to the S. E., on either side of which is an anchorage, sufficiently sheltered from the prevailing winds, over a good bottom, in from 7 to 9 fathoms. The north side of the bay is shoal, caused, probably, by the alluvial deposit from a river nearly in the centre. A patch of kelp extends off the S. E. point for two cables length, but has 9 fathoms over it at the centre. Gun Bay. Indian Bay

Neither Gun nor Indian Bays are noticed in Cordova's description of the strait, although they are quite equal to any other in the neighbourhood for stopping places.

Bouchage Bay, which is Cordova's Cantin Bay,* is small, and the water very deep; except near the bottom, where anchorage may be obtained in 8 fathoms, clay. It is separated from Bournand Bay, (Gil Bay of Cordova†) by Cape Remarquable, of Bougainville, which is a precipitous, round-topped, bluff projection, wooded to the summit. At two cables length from the base no bottom was found with 20 fathoms of line; but, at the distance of fifty yards the depth was 20 fathoms. Bournand Bay is more snug and convenient than its northern neighbour, Bouchage Bay, being sheltered from the southerly winds by Nassau Island. At the S. W. end of a stony beach at the bottom, is a rivulet of good water: off which there is good anchorage in 8 fathoms stiff mud. Bouchage Bay. Bournand Bay

Bougainville Bay, (Cordova's Texada Bay‡) forms a basin, Bougainville Bay.

* Ultimo Viage, 117. † Ibid, l. c. ‡ Ibid, p. 117, l. c.

Bougainville Bay.

or wet dock, in which a vessel might careen with perfect security. It is, from its small size, great depth of water, and the height of the land, rather difficult of access: which renders it almost always necessary to tow in. On entering, the anchor should be dropped in 12 fathoms, and the vessel steadied by warps to the trees, at the sides and bottom of the cove. It is completely sheltered from all winds, and an excellent place for a vessel to remain at, particularly if the object be to procure timber: which grows here to a great size, and is both readily cut down and easily embarked. A rivulet at the bottom affords a moderate supply of water; but, if more be required, the neighbouring bays will afford an abundance*

In the passage between Nassau Island and the main, the least water is 7 fathoms, over a stiff clay bottom; gradually deepening on each side. But the winds being baffling, and the tides irregular and rippling in many parts, a vessel should not attempt it but from necessity.

Nassau Island.

NASSAU ISLAND'S south extremity is Sarmiento's Point, Santa Brigida†

St. Nicholas Bay.

ST. NICHOLAS BAY, so named by the Nodales in 1618, (but previously, by Sarmiento, Bahia de Santa Brigida y Santa Agueda,‡ and French Bay by De Gennes), is not only of larger size than any of the bays to the south of Cape San Isidro, but is the best anchorage that exists between that cape and Cape Froward; as well from its being more easily entered and left, as from the moderate depth of water, and extent of the anchoring ground. Its points bear from each other, S. 58° W., and N. 58° E., and are distant two miles. Nearly in the centre is a small islet covered with trees; between which and the shore is a passage with 9 fathoms water, stiff clay. The shore is, however, fronted for its whole length by a shoal bank, which very much reduces the apparent extent of the bay. This bank stretches off to the distance of a quarter of a mile from the shore, the edge of which

* It was here that M. de Bougainville cut timber for the French Colony, at the Falkland Islands. To Sealing vessels it is known by the name of Jack's Harbour.

† Sarmiento, p. 219. This island is called by Cordova, Isla de Córdova y Ramos. —Ultimo Viage, p. 117.

‡ Sarmiento, p. 220.

is steep to, and is generally distinguished by the ripple, which, with a moderate breeze, breaks at half-tide. The Beagle anchored in the bay, at three cables length to the N. E. of the small central islet, in 12 fathoms, pebbly bottom; but the best berth is one-quarter to one-third of a mile to the S. W. of the islet, in 10 or 11 fathoms, muddy bottom. Captain Stokes recommends in his journal, in coming in, to keep sail upon the ship, in order to shoot into a good berth, on account of the high land of Nodales Peak becalming the sails; and, to avoid the drift of the stream of the river setting the ship over to the eastern side of the bay. I do not, however, think that the stream of the river can affect a ship in any position between the islet and the peak. In taking up an anchorage, much care is necessary to avoid touching the bank. Less than 10 fathoms is not safe, but in that depth the security is perfect, and the berth very easy to leave. In passing through the strait, this bay is very useful to stop at, as well from the facility of entering and leaving it, as for its proximity to Cape Froward. The islet is in lat. 53° 50′ 38″, and lon. 71° 03′ 13″.

St. Nicholas Bay.

In the middle of the bay is De Gennes River, (Rio del Valle Grande of Sarmiento*) which is of larger size than the Sedger River; it is one hundred yards across, and apparently extends in a winding direction up the valley for some distance. From its entrance being fronted by a shoal or bank, the form of which must be constantly shifting; and its being strewed with trees that drift out of the river during the winter freshes, it is far from being an eligible place for procuring water.

De Gennes River.

From Glascott Point, the southern head of the bay, a mountainous and high range of hills runs back for some distance. On its summit are several sharp peaks; the most conspicuous of which is Nodales Peak.

From Glascott Point the coast extends in nearly a straight line to Cape Froward, a distance of seven miles, the land at the back continuing mountainous and woody. A point, formed by a beach of shingle, covered with trees to within twenty yards of the water's edge, and distant nearly three miles from Cape Fro-

Coast between St. Nicholas Bay and Cape Froward.

* Sarmiento, p. 220.

Anchorage to the eastward of Cape Froward.

ward, is the only projection. Between this and the entrance of a rivulet, which waters the only valley that exists in this space, an anchorage at a quarter of a mile from the shore, in 11 fathoms, might be occupied during a westerly wind; but with the wind more southerly it would be too much exposed to be safe. The Beagle anchored here at two cables length off the sandy beach, in 11 fathoms.

Cape Froward.

Cape Froward, the southern extremity of the continent of South America, rises abruptly from the sea. At its base is a small rock, on which Bougainville landed, as did Lieutenant Graves, for the purpose of obtaining a set of bearings. The hill that rises immediately above the Cape, was called by Sarmiento, the Morro of Santa Agueda.* Cape Froward is in lat. 53° 53′ 43″, lon. 71° 14′ 31″. The ebb tide sets to the northward, and the flood to the southward, but with very little strength. It is high-water at full and change at one, p. m..

North Coast of Clarence Island.

The North Coast of Clarence Island extends from the entrance of Magdalen Sound to that of the Barbara Channel; the whole length of which is indented by sounds stretching deeply into the island.

Port of Beaubasin.

Bougainville's Port of Beaubasin, (the Bahia Darsena of Cordova†), is sufficiently pointed out by the small rocky islet called Periagua,‡ and the mountain of the Vernal, described in page 38. The outer part of the port decreases in width gradually to the entrance of the Harbour, which is formed by two projecting points, a very short distance apart, and is very shoal, the deepest water being only 2¾ fathoms. Inside, in the basin, there are 5 fathoms. It is a very snug place when once in, but possesses no advantage, since it is on the wrong side of the strait for vessels bound through to the westward; for the northerly or easterly wind, which would be favourable to proceed, would prevent a vessel sailing out of it.

Bays west of the Vernal.

Inman Bay, Hawkins Bay, Staples Inlet, and Sholl Harbour, are all deep inlets, surrounded by high precipitous land.

To the westward of Greenough Peninsula, is Lyell Sound.

* Sarmiento, p. 218. † Ultimo Viage, p. 121. ‡ Ibid, p. 122.

It is nine miles deep, and is separated at the bottom from Sholl Harbour by a ridge of hills about one mile and a half wide. Lyell Sound.

In the entrance of Lyell Sound, are two conspicuous islands, one of which is very small. They are called Dos Hermanas, and bear from Cape Froward S. 48°, W. five miles and a half.

Kempe Harbour, one mile and a half within the entrance, on the west side, of Lyell Sound, is rather difficult of access, but perfectly secure, and would hold six ships. Stokes Creek, on the same side, more to the southward, also offers good anchorage; but from its being out of the way, can be of no utility. Kempe Harbour.

Cascade Harbour, and Mazzaredo Bay, are of less size, and therefore more attainable, but of the same character with Lyell Sound: viz., deep water, surrounded by high land. The former is known by the cascade which M. de Bougainville describes, from which it derives its name. On the head land that separates these harbours from Lyell Sound, is a sugar-loaf hill, the position of which is well determined, in lat. 53° 57′ 32″ lon. 71° 24′ 13″. Cascade Harbour and Mazzaredo Bay. Bougainville's Sugar Loaf.

Hidden Harbour has a narrow entrance; but, if required, offers good shelter. Hidden Harbour.

San Pedro Sound is the most extensive inlet that we know in Clarence Island. It extends, in a southerly direction, for nearly thirteen miles, and has three other inlets branching off into the land, two to the westward, and one to the eastward. There is a good, although a small, anchorage on its west side, one mile and a half within the entrance, called Murray Cove; and another close to it, which is even more sheltered. San Pedro Sound. Murray Cove.

Freshwater Cove, the Caleta de agua dulce of Sarmiento,* is a confined and indifferent place for a ship. Freshwater Cove.

Bell Bay, (the Bahia de la Campana of Sarmiento†), has a very convenient anchorage, Bradley Cove on its west side, bearing S. 79° W. from Point Taylor, the eastern head of the Bay. It will be readily distinguished by a small, green, round hillock that forms its north head. The anchorage is in 17 fathoms, and the vessel hauls in, by stern-fasts or a kedge, into Bell Bay. Bradley Cove.

* Sarmiento, p. 217. † Ibid, p. 213.

Pond Bay.

9 fathoms, in perfect security. POND BAY, to the northward, has good shelter, but it is not of such easy access; for it would be necessary to tow both into and out of it.

Mount Pond.

MOUNT POND, a peaked hill over the harbour, is a conspicuous mountain, and is visible from the eastward as soon as it opens round Cape Froward. It has two summits, one of which, only, is visible from the eastward.

St. Simon's Bay.

Between Cape Inglefield and Point Elvira, is ST. SIMON'S BAY.* It is studded with islands and rocks, and at the bottom has two communications with the Barbara Channel, separated from each other by Burgess Island; the easternmost of which, called Tom's Narrows, is the most extensive: but this, from the irregularity and force of the tides, is not to be preferred to the more direct one of the Shag Narrows, on the western side of Cayetano Island; (see page 44) for there is no good anchorage in St. Michael's Channel, which leads to it, and it is bounded by a steep and precipitous coast. The Gonsalez Narrows,† on the west side of Burgess Island, is not more than thirty yards across; and, from the force of the tide, and the fall of the rapid, would be dangerous even for a boat to pass.

Millar's Cove.

The only good anchorage in St. Simon's Bay is MILLAR'S COVE; it is about three miles within Point Elvira, and has three rocky islets off its entrance. A conspicuous mount forms the summit of the eastern head. The anchorage is in 5 fathoms, a good bottom, and entirely sheltered. Wood and water are plentiful.

Port Langara.

Immediately round the east head of Millar's Cove, is PORT LANGARA.‡ It is rather more than a mile long, and two-thirds of a mile wide, and trends in a W. N. W. direction. The water is deep, excepting at the head, and in a cove on the north shore; in either of which there is good anchorage. At the former the depth is 8 fathoms and, in the cove, 5 fathoms. On the eastern side of the bay, are SHIPTON and MELLERSH Coves. Both are surrounded by high land; and the water being very deep, neither of them afford anchorage. Off the head, that divides them, are the CASTRO ISLANDS; on the north side of the largest

* Sarmiento, p. 213. † Ultimo Viage, p. 133. ‡ Ibid, p. 132.

is a very convenient cove, with a moderate depth of water. The CASTELLANO ISLANDS consist of five principal ones; they are situated in the centre of the bay, and have no anchorage among them. Castellano Isles.

The coast from Cape Froward to Jerome Channel, a distance of forty miles, is very slightly indented. The anchorages, therefore, are few in number, but they are of easier access, and, altogether, more convenient than those of the southern shore. Taking them in succession, SNUG BAY*, five miles N. W. of Cape Froward, is a slight indentation of the coast at the embouchure of a small rivulet; the deposits from which have thrown up a bank near the shore, on which anchorage may be had in 8 and 9 fathoms. The best anchorage is half a mile to the E. S. E. of the island, in 9 fathoms, black sand, the rivulet mouth bearing N. N. W. three-quarters of a mile. It is much exposed, being open from W. S. W., by South, to S. E. Byron, who anchored in it, describes it as being fit for his purpose.† It is certainly a convenient stopping place in fine weather. Snug Bay.

WOOD'S BAY, situated under the lee of Cape Holland, is a convenient stopping place for ships, but only small vessels should anchor inside the cove. The anchorage is very good to the eastward of the river's mouth, at half a mile from the shore, in 17 and 13 fathoms water. Small vessels may enter the cove, by luffing round the kelp patches that extend off the south point of the bay, on which there is 2½ fathoms. Wood's Bay. Anchorage to the eastward of the river.

Entering Wood's Bay, steer for the gap, or low land behind the cape; and, as you near the south point, keep midway between it and the river's mouth; or, for a leading mark, keep a hillock, or conspicuous clump of trees at the bottom of the bay, in a line with a remarkable peak, one or two miles behind, bearing, by compass, N. 52° W. Anchor in 17 fathoms, immediately that you are in a line between the two points. Small vessels may go further, into 12 fathoms. The west side of the Cove may be approached pretty near, and the depth will not be Directions for entering the bay.

* Castejon Bay of Cordova.—Ultimo Viage, p. 123.

† Hawkesworth vol. i. p. 63.

Wood's Bay. less than 5 fathoms, excepting upon the two fathoms patch that stretches off the east point, the extent of which is sufficiently shewn by the kelp; but on the eastern side the bank shoals suddenly, and must be avoided, for there are 13 fathoms close to its edge, upon which there is not more than two feet water. The south point of Wood's Bay is in lat. 53° 48′ 33″, and lon. 71° 35′ 41″.

Cape Holland. CAPE HOLLAND is a bold, high, and, although slightly projecting, yet a very conspicuous headland. It is precipitous, and descends to the sea in steps, plentifully covered with shrubs. It is fourteen miles to the westward of Cape Froward.

Cape Coventry. Near CAPE COVENTRY, and in Andrews Bay, anchorage may be had near the shore, if the weather be fine. To the westward of the former, at half a mile from the shore, there are 13 fathoms.

Cordes Bay. CORDES BAY, four miles to the eastward of Cape Gallant, may be known by the small bright green islet (Muscle Island,) that lies in the entrance; also by a three-peaked mountain, about 1,500 or 2,000 feet high, standing detached from the surrounding hills, at the bottom of the bay. The western entrance, which lies between west point and the reef off Muscle Island, is two-thirds of a mile wide; within it, is a bay one mile deep, but much contracted by shoals covered with kelp; between them, however, the anchorage is very good and well sheltered. The

Port San Miguel. bottom is of sand, and the depth 5 and 7 fathoms. At the extremity of the bay is a large lagoon, PORT SAN MIGUEL, trending in a north-east direction for two miles, and two-thirds of a mile across; the entrance is both narrow and shoal, and not safe for a vessel drawing more than six feet. Inside the lagoon the depth is from 3 to 13 fathoms. With Forteseue Bay and Port Gallant so near, the probability is that it will never be much used; but in turning to the westward it would be better to anchor here, than lose ground by returning to Wood's Bay. By entering the western channel and steering clear of the kelp, a safe and commodious anchorage may easily be reached.

Fortescue Bay. FORTESCUE BAY is the first best anchorage to the westward of St. Nicholas Bay.—It is spacious, well sheltered, easy of access, and of moderate depth. The best berth is to the south-east of the small islet, outside of Wigwam Point, in 7 or 8

fathoms. Having the entrance of PORT GALLANT open, small vessels may sail into the port, but the channel is rather narrow. The banks on the western side, off Wigwam Point, are distinguished by the kelp. When within, the shelter is perfect; but Fortescue Bay is quite sufficiently sheltered, and much more convenient to leave. In this part of the strait, as the channel becomes narrowed by the islands, the tides are much felt. There are two good anchorages before reaching the entrance of the Jerome Channel; namely, ELIZABETH BAY and YORK ROADS, off Batchelors River.—They are, however, only fit for stopping places. There are no anchorages among the islands that can be recommended, excepting in the strait that separates the group of Charles's Islands, in which there is security and a convenient depth. When the wind blows fresh there is a hollow sea between Charles's Islands and the north shore, which very much impedes ships beating to the westward. Port Gallant.

At a short distance to the E. S. E. of Passage Point, is a shoal, with two fathoms upon it.* Elizabeth Bay has a sandy beach, and a rivulet emptying itself into it. Cordova recommends the best anchorage to be in 15 fathoms, Passage Point bearing E. S. E., distant half a mile, about three cables length from the river; and to the north-west of a bank on which there is much kelp. Elizabeth Bay.

Captain Fitz Roy describes the anchorage of YORK ROADS, or BATCHELORS BAY, to be good and convenient: "half a mile off, a woody point, (just to the westward of the river) bearing N. 6° E., and the mouth of the river N. E., three quarters of a mile, is a good berth; because there is plenty of room to weigh from and space to drive should the anchor drag; the bottom is good. in 10 or 12 fathoms, but not in a less depth. The shore is a flat shingle beach for two miles, the only one in this part of the strait."† Cordova recommends the following as the best anchorage, at half a mile from the beach, the river bearing N. 5° E., and the west point of the bay N. 27° W.‡ York Roads.

The set and change of the tide here are very uncertain on account of the meeting of the Jerome Channel tides with those of

* Ultimo Viage, p. 136 † Fitz Roy M, S. ‡ Ultimo Viage, p. 137.

Tides off York Roads.

the strait, which occasions many ripplings; and it would require a better experience than we possess, to give a correct explanation. Captain Fitz Roy, says, that "the tide along shore, near Batchelor River, changed an hour later than in the offing. At Batchelor Bay, by the beach, during the first half or one third of the tide that ran to the south-east, the water fell; and during the latter half or two thirds, it rose. In the offing it ran very strong." The establishment of the tide, at the entrance of the river, by an observation made by Captain Fitz Roy with the moon eight days old, would be, at full and change, at $1^h\ 46'$. By an observation made by Captain Stokes, two years previous, it was found to be $2^h\ 13'$; the tide at the anchorage ran three knots.

Batchelor River.

BATCHELOR RIVER is accessible to boats only; and in going into or out of its entrance they must be very careful to follow exactly the course of the stream, for a bar lies outside: large boats cannot enter at half tide.*

To the following islands in the centre of the strait, that form the south limit of English Reach, I have restored the names that were originally given by Sir John Narborough.

Secretary Wren's Island.

SECRETARY WREN'S ISLAND is a small rocky islet, rising abruptly on all sides, and forming two summits. Near it are some rocks, and to the south-east is a group of small rocks; and, at a mile to the E. S. E., are two rocks above water, called Canoas. The islet has no name on Cordova's chart.

Charles Islands.

CHARLES ISLANDS,† besides some smaller islets, consists of three principal islands; and in the centre there is a very good port, having good anchorage within the islets, in 13 fathoms. It has an outlet to the north-west, and one to the south-west, also a narrow point communicates with the strait to the south-east.

Opposite to Cape Gallant, on the eastern island, near its north-west end is a conspicuous white rock, called WALLIS'S MARK. Next to the westward in succession are MONMOUTH and JAMES ISLANDS, (called by Cordova, Isla de los Infantes,) then CORDOVA ISLET, and RUPERT ISLAND, and to the westward of these the island of CARLOS III. so named by Cordova. The

Island of Carlos III.

* Fitz Roy M. S.

† Island de los Principes of Cordova.—Ultimo Viage, p. 138.

last is separated from Ulloa Peninsula by St. David's Sound, which is navigable throughout. Carlos III. Island.

To the northward of Whale Point, the eastern extremity of Carlos III. Island, is a cove with an anchorage, in 15 fathoms, close to the shore, on a steep bank, but bad ground; the Beagle and Adelaide both dragged off the bank, from the violence of the squalls off the high land. From the north point of the cove to Rupert's Island, is a rocky ledge, (Lucky Ledge), over which the tide sets with considerable strength. The Beagle, having dragged her anchor in the cove, was brought up by its hooking a rock on the ledge, but it was found broken on being hove up. Whilst there, the tides set past her in a north and south direction, at the rate of three knots an hour.

To the westward of Cape Middleton, of Narborough, is Muscle Bay,* having deep water, and of uninviting character. Cordova describes it to be a mile wide, with unequal soundings, from 12 to 40 fathoms, stones. The bay is not to be recommended, although it appears to be well sheltered. There is an anchorage in from 15 to 30 fathoms in Bonet Bay of Cordova, close to Carlos III. Island. It lies under the S. E. side of some islands opposite to Batchelor River. At a short mile to the eastward of Cape Crosstide, the N. W. end of Carlos III. Island, is Tilly Bay, but it has nothing to recommend it, particularly when the much better anchorage off Batchelor River is so close at hand. Muscle Bay. Bonet Bay. Tilly Bay.

Choiseul Bay, and Nash Harbour, on the Fuegian Coast, are not in the least inviting; the former, Captain Fitz Roy describes to be a large, deceiving, harbour-like bay, full of islets and patches of kelp, under which, of course, there are rocks. Between the islets, the water is deep and unfit for anchorage. Choiseul Bay and Nash Harbour.

Nash Harbour is equally unserviceable.†

Whale Sound, also on the Fuegian shore, at the back of Ulloa Peninsula, is a large inlet, trending eight miles into the land, and terminating in a valley bounded on each side by high mountains. There is anchorage only in one place, the west side of Last Harbour; and, although this harbour appears large, the anchorage is small, and close to the shore. Whale Sound.

* Roxas Bay of Cordova. - Ultimo Viage, p. 136. † Fitz Roy M. S.

St. David's Sound.

ST. DAVID'S SOUND separates Carlos III. Island from Ulloa Peninsula. At its north end the water is deep, but where it begins to narrow, there are soundings in it, on which anchorage might be found, if there was a necessity; but I cannot imagine such an occasion will ever happen:—should it, the chart will be a sufficient guide.

SECTION V.

Strait of MAGALHAENS—Jerome Channel—Otway and Skyring Waters—Crooked and Long Reaches.

Jerome Channel.

The Jerome Channel was only slightly examined by Cordova's officers; for, their object being merely to confirm or disprove Sarmiento's statement of the insularity of the land between it and the Gulf of Xaultegua, now called Croker Peninsula,* the Lago de la Botella was alone explored by them. The continuation of the Jerome, named in the old charts Indian Sound, having never been traced; and, therefore, being an object of great interest, it was investigated by Captain Fitz Roy as carefully as could be done in the middle of winter in an open boat. The period of his absence from the ship, however, thirty-two days not being sufficient to complete the service, the western shores of the Skyring Water were not visited; and as a further examination of it will, probably, be one of the objects of the voyage he is now preparing for, a brief description will be sufficient.

Description.

The Jerome Channel is narrow, but throughout, free from danger. The western shore is high and steep, and covered with trees: the eastern shore is lower and less wooded. In mid-channel, near its western end, are two islets which have no place in the Spanish Chart; unless the Teran Isles† be intended to represent them;—if so, they are badly placed. The Spanish Chart makes the channel six miles too long.

* Sarmiento describes it to be an island by the Indian name of Cayrayxayilsgua. See Sarmiento, p. 208.

† Ultimo Viage, appendice 36.

Coves on the west shore.

On the west side of the Jerome are two Coves, Wood Cove and Seal Cove, that may be used with advantage by small vessels. On the the eastern shore, the bights, Three Island Bay (Cordova's Real Cove*) and Coronilla† Cove appeared to be commodious. Arauz Bay is open and exposed to the N. W.

Bays on the east shore.

Where the Lago de la Botella joins the Jerome, the latter winds round to the north-east. On its eastern side, behind the False Corona Isles, is Cutter Cove, affording anchorage for a small vessel; a plan was made of it. Opposite is Nuñez Creek, with deep water.

Cutter Cove.

Corona Isles.

Abreast of the Corona Isles, one of which, the Sugar Loaf, is about 200 feet high, is Sulivan Sound, penetrating for five miles into the land on the western side of the channel; and, at a league to the northward of the Sugar Loaf, is another opening to the westward; on the north shore of which, is Bending Cove; which, with Cutter Cove, are the only stopping places between Cape Forty-Five and Child's Bluff.

Bending Cove.

Otway Water.

Between Child's Bluff and Point Stokes, the Otway Water commences. On the west shore it affords several commodious anchorages. Off Point Villiers, lat. 53° 09′, at a quarter of a mile from the shore, there are from 10 to 30 fathoms; and this depth decreases in advancing more northerly. There is anchorage all across the north-east part of the Water, in from 5 to 20 fathoms, the bottom of sandy-mud.

Anchorages.

Inglefield and Vivian Isles.

Inglefield and Vivian Islands, at the west end of the Water, are low but thickly wooded. An isthmus, 6 to 10 miles across, separates the Otway Water from the Strait near Elizabeth Island. From an elevated station on the north side of Fitz Roy Island, this narrow neck appeared to be low and much occupied by lagoons. The south shore of Otway Water is formed by high land, with three deep openings that were not examined. Brunswick Peninsula, a mass of high mountainous land, is the most southern extremity of the Continent.

Brunswick Peninsula.

In lat. 52° 40′ and lon. 71½° W. is the east entrance of Fitz Roy Channel; it forms a communication between the Otway

* Ultimo Viage, Appendice, p. 34. † Ibid, 35.

and the Skyring Waters, and takes a winding course to the N. W. for eleven miles, which is easily navigated. A strong tide running during the neaps at the rate of 5 or 6 miles an hour, in the entrance, and of 2 or 3 in other parts, sets through it, six hours each way. The rise and fall, however, were scarcely distinguishable. Fitz Roy Channel.

Skyring Water is ten leagues long from east to west. Its shores are low. At the western extremity two openings were observed to wind under a high castellated-topped mountain (Dynevor Castle,) which were supposed by Captain Fitz Roy to communicate with some of the sounds of the western coast. Through Euston opening, the southern one, no land was visible in the distance; but on a subsequent examination of the termination of the Ancon sin Salida of Sarmiento, by Captain Skyring, no communication was detected. Skyring Water.

Of the Tides in the Jerome and Interior Waters.

The tide was found to set through the Jerome Channel with great regularity, six hours each way. The Spanish account, however, says, "The current is always in the direction of the channel, but rarely sets to the N. W., particularly in mid-channel and the western shore; on the opposite side, however, the tide sets six hours each way to the N. W. and S. E."* Tides.

The following observations were made by Captain Fitz Roy for the time of high-water at full and change, at various parts of the Jerome and its interior waters, viz.:—In the entrance of the Jerome, near Arauz Bay, at 1 o'clock; near Bending Cove, at 3 o'clock; at Cutter Cove, at 4 o'clock; on the south shore of Fanny Bay, at Gidley Island, as also at Martin Point, at 5 o'clock; at Inglefield Island, at 4 o'clock; and, at the same hour at the eastern entrance of Fitzroy Channel; but at the western end of it at 1^h 15′. The variation of the compass was found to be at the

Point of Islets . .	23° 58′
Donkin Cove . .	23° 40′
Wigwam Cove . .	23° 34′

* Ultimo Viage, Appendice, p. 41.

Inglefield Island	. .	23° 56′
Point Martin	. .	23° 58′

The mean of which will be 23° 49′.

Crooked Reach.

THE PORTION of the strait comprised between the western extremity of Ulloa Peninsula and the entrance of the Jerome is called CROOKED REACH. In the navigation of this part Wallis and Carteret suffered extreme anxiety; and no one that has read their journals would willingly run the risk of anchoring in any port or bay on its southern shore. The chart will shew several inlets deep enough to induce any navigator to trust to them; and, probably, for small vessels, many sheltered nooks might be found, but they have all very deep water, and when the wind blows strong down to Long Reach, they are exposed to a heavy sea, and a furious wind. The anchorage of BORJA BAY within the Ortiz Islands (the Island Bay of Byron) is so much preferable, that it alone is to be recommended. Both Captain Stokes and Captain Fitz Roy speak highly of it in their journals; it is snug and well sheltered, and tolerably easy of access, but in a gale, like its neighbours, the anchorage is much incommoded by the williwaws, which "drive the ship from one side to the other, as if she were a light chip upon the water."* Captain Fitz Roy says, "let me recommend Borja Bay as an excellent, although small, anchorage; wood and water are plentiful; under the coarse upper sand is a stiff clay, like pipe-clay. Avoid the islet off its west side as you go in or out."†

Borja Bay.

As this is an anchorage that may be much used, Captain Stokes' account of it is also subjoined.

Description.

"BORJA BAY is situated on the northern shore of Crooked Reach, two miles to the eastward of Cape Quod. Its position is pointed out as well by the islet off its west point, as by its situation with respect to El Morrion, the helmet-shaped point previously called by the English, ST. DAVID'S HEAD. The entrance to the bay is to the eastward of the largest islet, and presents no dangers; all the islets and shores of the bay may be approached to half a cable's length, even to the edge of the kelp. The only difficulty that impedes getting into the bay arises from the baffling

* Fitz Roy M. S. † Ibid.

winds and violent gusts that occasionally come off the mountains and down the deep ravines which form the surrounding coast, and the utmost vigilance must be exercised in beating in under sail to guard against their effects. The anchorage is perfectly sheltered from the prevailing winds, the westerly and south-westerly gales, and is open only to south-easterly winds, which very rarely blow here, and still more rarely with violence; and as the holding ground is good (small stones and sand) and the depth of water moderate (14 to 16 fathoms), and any fetch of sea prevented by the narrowness of the strait in this part, the greatest breadth being only three miles, it may be pronounced a very good and secure harbour. The best plan is to anchor with the bower, and steadied to the shore by a hawser or a kedge. No surf or swell obstructs landing any where; good water and plenty of wood are easy to be embarked; the trees, a species of beech, are of a considerable size. The shores are rocky, and the beach plentifully stocked, as indeed are all parts of the strait to the eastward, with barberries and wild celery.* Borja Bay.

Byron anchored in Borja Bay, as did also Carteret in the Swallow.† The former gives a plan of it, and calls it Island Bay. He attempted to anchor in it, but was prevented by the strength of the tide.‡

Captain Stokes describes the MORRION, or ST. DAVID'S HEAD, to be a lofty granitic rock, of which the outer face is perpendicular and bare, and of a light grey colour, distinguishable from a considerable distance both from the east and the north-west, and forming an excellent leading mark to assure the navigator of his position. El Morrion, or St. David's Head.

Narborough thus describes CAPE QUOD. "It is a steep up cape, of a rocky greyish face, and of a good height before one comes to it: it shews like a great building of a castle; it points off with a Race from the other mountains, so much into the channel of the strait, that it makes shutting in against the south land, and maketh an elbow in the streight."§

* Stokes M. S.

† Hawkesworth vol. i. p. 395.

‡ Hawkesworth vol. i. p. 68.

§ Narborough, p. 76.

Current near Cape Quod.

Abreast of Cape Quod Captain Stokes tried and found the current setting to the eastward at one knot and a half an hour.

Between Borja Bay and Cape Quod are two coves, too small to be of any use when Borja Bay is so much superior.

Snowy Sound.

Snowy Sound, a deep inlet, unimportant to the navigator, and not worth any persons while to enter, excepting for anchorage in a cove at about a mile, and in another at two miles, within its western head. It extends in for ten miles, and terminates in two inlets, surrounded by high, perpendicular, black rocks. Snowy Sound was formerly considered to be a channel communicating with Whale Sound, and insulating Ulloa Peninsula; but this is disproved by Captain Fitz Roy's careful examination of it.

The following descriptions of the Bays between Cape Quod and Cape Notch, are taken principally from the Appendix to Cordova's Voyage to the Strait.

Barcelo Bay.

Barcelo Bay, the first to the west of Cape Quod, seems to be large and incommodious; and strewed with small islets.

Ossorno Bay.

Ossorno Bay follows, and, according to Cordova, has very deep water all over; there being 40 fathoms within a cable's length of the beach, excepting on the west side, where there is a rocky ledge with from 10 to 20 fathoms.

Langara Bay.

Next, to the westward, is Langara Bay. It trends in for about a mile to the north-east, and has 10 to 12 fathoms stony bottom. It is more sheltered than the two former bays.

Posadas Bay, or Lion Cove

Posadas Bay is, most probably, Wallis's Lion Cove. Its western point is formed by a high, rounded, and precipitous headland, resembling, in Captain Wallis's idea, a lion's head; and although Cordova could not discover the likeness, yet it is sufficiently descriptive to point out the bay, were the anchorage worth occupying, which it is not. Wallis describes it to have deep water close to the shore; his ship was anchored in 40 fathoms.*

Arce Bay.

Arce Bay. Cordova describes it to have anchorage in from 6 to 17 fathoms, stones. It divides at the bottom into two arms,

* Hawkesworth, vol. i. p 399.

each being half a mile deep. The outer points bear from each other W. N. W. and E. S. E., half a mile across.

Flores Bay. FLORES BAY is, probably, Wallis's Good Luck Bay. Cordova describes it to be very small and exposed, with from 6 to 20 fathoms, stones and gravel. At the bottom is a rivulet of very good water.

Villena Cove. VILLENA COVE has from 15 to 20 fathoms, and is very open and exposed.

Guirior Bay. Then follows GUIRIOR BAY. It is large, and open to the south, and probably affords good anchorage in coves. Cordova describes it to extend for more than a league to the north, the mouth being two miles wide. Its west point is Cape Notch, which will serve to recognize it. Near the entrance is an island and several rocks; and within them, on the west side, are two coves, with from 15 to 30 fathoms, stones. Beyond them is the port, which has a narrow entrance. A river falls from a considerable height into it, and, by the rapidity of the current has formed a channel of oaze in the direction of the entrance, in which there is good anchorage in from 20 to 26 fathoms: on either side of the channel the bottom is stony. The port is too difficult to reach to make it an object of any value. Should, however, a strong gale from south or south-west oblige a ship to run in, she should avoid passing too near the west side of the narrow; for a reef extends off it for nearly a cable's length. There is also a bank outside the narrow, but it is pointed out by kelp.

Anchorage.

Directions for entering the port.

Remarks upon the anchorages between Capes Quod and Notch. From the above description of the bays between Capes Quod and Notch, occupying a space of twelve miles and a half, and from the view we had of them in passing, none seem to be convenient, or very safe. The best port for shelter, for a ship, is Swallow Harbour, on the opposite shore: but small vessels may find many places, that a ship dare not approach, where every convenience may be had; for if the water be too deep for anchorage, they may be secured to the shore at the bottom of the coves, where neither the swell nor the wind can reach them.

Swallow Harbour. SWALLOW HARBOUR is one mile and a quarter to the westward of Snowy Sound. It is a better anchorage for ships than

Swallow Harbour.

any in the neighbourhood. The plan of it is a sufficient guide, the dangers being well buoyed and pointed out by kelp. It was first used by Captain Carteret in the Swallow; and Cordova gives a short description of it.

The anchorage is under the east side of the island which separates the harbour from Cordova's Condesa Bay, and which forms its west side. Wallis describes the harbour to be "sheltered from all winds, and excellent in every respect. There are two channels into it, which are both narrow, but not dangerous, as the rocks are easily discovered by the weeds that grow upon them."* Cordova's account of it runs thus—"To the westward of Snowy Sound are two bays, formed in a bight by an island. The eastern, Swallow Harbour, has in its mouth three islands and a rock; besides being strewed with kelp, which serves to point out the dangers in entering. Within, it is very well sheltered from all winds. The depth is from 40 to 16 fathoms, stones, and in some parts oaze. This bay is to the south of Cape Notch; and to recognize it, there is a cascade falling down the centre of a mountain at the bottom of the port, to the westward of which are two higher mountains; the summit of the eastern being peaked, and the western one rounded.

Wallis's account of the harbour.

Cordova's account.

Condesa Bay.

The bay, to the westward of the island, is CONDESA BAY. It is full of islets and rocks, and the channel behind the island, communicating with Swallow Bay, is very narrow."†

Rock off the entrance of Swallow Harbour.

At about a cable's length off the west point of the entrance of Swallow Harbour, Captain Fitz Roy saw a rock just awash. This danger should be carefully avoided.

Stewarts Bay.

STEWARTS BAY is less than a league from Swallow Bay. Of this place Captain Stokes makes the following remarks. "Stewarts Bay afforded us a quiet resting place for the night, but it is by no means to be recommended as an anchorage; for though it is sufficiently sheltered from wind and sea, yet the rocks, in different parts of it, render the passage in or out very hazardous: every danger in it is pointed out by rock weed, but it is so much straitened as to require the utmost vigilance. A plan of it was

* Hawkesworth, vol. i. p. 401. † Ultimo Viage, p. 146.

made and connected with the coast by bearings and angles to Cape Noteh, and to other fixed points. The description of the place by Cordova cannot be improved."* Stewart Bay.

The account in Cordova is as follows:—

" Stewart Bay (La Bahia de Stuardo) follows Condesa Bay. It has an islet besides several patches of kelp, an indication of the many rocks that exist.—Even the best channel is narrow and tortuous; the depth from 12 to 16 fathoms, stones. At the bottom is an islet, forming two narrow channels leading into a port or basin, two cables length wide: the eastern channel is the deeper and has 15 to 20 fathoms. Inside the Basin, on the east side, the depth is 6 and 9 fathoms, mud. A reef extends for half a cable's length to the westward of the south end of the islet. It would be difficult and dangerous to enter this small basin."†

Then follows a deep and extensive channel, of which we know only that it extends to the south for five or six miles; and, perhaps, is very similar in its termination to Snowy Sound. It is Sarmiento's SNOWY CHANNEL. (Ensenada de Mucho-Nieve.)‡ Snowy Channel.

At this part of the strait, the breadth is about two miles and a half; but, at Cape Quod, it scarcely exceeds one mile and a quarter. The shores are certainly much less verdant than to the eastward of Cape Quod; but not so dismal as Cordova's account would make them appear to be; for, he says: " As soon as Cape Quod is passed, the strait assumes the most horrible appearance, (con el aspecto mas horrible,) having high mountains on both sides, separated by ravines entirely destitute of trees, from the mid-height upwards." To us it appeared that the hills were certainly much more bare of vegetation above, but below were not deficient; the trees and shrubs, however, are of small size. For the purposes of fuel abundance of wood is to be obtained. In the winter months the hills are covered with snow, from the summit to the base; but in the month of April, when the Adventure passed through, no snow was visible about them. Appearance of the Coast.

* Stokes M. S. † Cordova, p. 147. ‡ Sarmiento, p. 207.

Appearance of the coast.

Captain Stokes remarks, that, the mountains in this part (Cape Notch) spire up into peaks of great height, connected by singularly sharp saw-like ridges, as bare of vegetation as if they had been rendered so by the hand of art. About their bases there are generally some green patches of jungle, but upon the whole nothing can be more steril and repulsive than this portion of the strait. This account of Captain Stokes agrees with Cordova's; but upon examining the coves, we found them so thickly wooded with shrubs and jungle, and small trees, that it was difficult to penetrate beyond a few yards from the beach.

Cape Notch.

Cape Notch is a projecting point of grey coloured rock, about 650 feet high, having a deep cleft in its summit. It is a conspicuous headland, and cannot be mistaken.

Playa Parda Cove.

The next place to the westward of Cape Notch, that can be recommended for an anchorage, is Playa Parda Cove, which is well sheltered, and, for chain cables, has a good bottom, being of sandy-mud, strewed with stones; it is half a mile wide at the entrance, and about a quarter deep. Round the west side of Middle-point, is a channel, a quarter of a mile long and 150 yards wide, with 6 and 7 fathoms water, communicating with a very excellent little harbour for a small vessel, of about a quarter of a mile in diameter.

Playa Parda Cove is easily known by Shelter Island, that fronts the inlet of Playa Parda. The inlet is one mile and a half long, and half a mile broad, but with very deep water all over. By luffing round the island, a ship will fetch the anchorage in the cove; and, although sail should not be reduced too soon, yet the squalls, if the weather be bad, blow down the inlet of Playa Parda with great violence. Anchor a little within, and half-way between the points of entrance, at about one cable and a half from the middle point, in 5½ and 6 fathoms.

Anchorage in Playa Parda Cove.

Glacier Bay.

Of Glacier Bay, remarkable for a Glacier at the bottom, and of another bay to the eastward of it, we know nothing: the former may possess good shelter and, perhaps, anchorage; but the latter is too full of islands to be recommended. Between Glacier Bay and Playa Parda, the shore is bold but straight, excepting a small cove about two miles from Playa Parda,

which seemed likely to afford shelter for small vessels. Off the west inner point is a reef, but within it there seemed to be a basin half a mile deep. Eye sketches of these three indentations were made as we passed by. Cove between Glacier Bay and Playa Parda.

To the westward of Snowy Channel are several inlets affording, apparently, good shelter, but those we examined were found to have very deep water.

Opposite to Playa Parda is a deep opening which has more the appearance of a channel, leading through the Tierra del Fuego, than any opening to the west of the Barbara. It is evidently the inlet noticed by Sarmiento, and thus described by him:—"a great bay (Ensenada) which trends into the land in a W. S. W. direction for more than two leagues, and has an island at its mouth;—we called it the ABRA (opening), because we did not see its termination. On the opposite shore there is another port and grey beach (Puerto y Playa Parda), which has an island that shelters it. Within the ABRA the land is low and hummocky;—half a league beyond (i. e. to the eastward of) the Abra is a cove; and on the opposite shore, a league across, is another Cove which forms a port, which the Indians call PELEPELGUA, and the Cove they call EXEAQUIL.*" The Cove PELEPELGUA, may probably be Glacier Bay, and EXEAQUIL must of course be one of the coves to the eastward of the ABRA. Abra

To us, the opening of the Abra seemed to be one mile and a half wide, with an island in the entrance. Within, it appeared to take, first, a south, then a S. W. course, and afterwards to trend round a projecting, low, hummocky point of the east shore, and wind under the base of a high precipitous ridge on the opposite or west shore, towards the S. E., beyond which, its course could not be observed.

On the seaward coast there is a deep opening behind Otway Bay, which, probably, may communicate with it.

The weather here is generally so thick, that, although the distance across be only two to three miles, yet one shore is frequently concealed from the other, by the mist; on which account Captain Stokes found it impossible to form any plan of this part of Weather

* Sarmiento, p. 206.

Weather.

the strait, on his passage through it. Captain Stokes, in leaving Stewart's Bay, says, " we continued our progress to the westward, having westerly and S. W. winds, with thick weather and drizling rain. The coasts on both sides were very rarely visible to us, by reason of the thick mist by which they were capped. It is, however, a bold coast on each side, otherwise the strait would be utterly unnavigable in such weather."

Marian's Cove.

MARIAN'S COVE, one mile and a half to the west of Playa Parda, is a convenient anchorage; at the entrance it is about one-third of a mile wide, and more than half a mile deep; a plan was made of it, which will be a sufficient guide. Captain Stokes, observes, that it affords shelter from the prevailing winds; the anchorage is 22 fathoms, good holding ground; but less water may be obtained, if required, there being 8 fathoms within sixty yards of the beach, at the bottom of the bay. In entering, the west side should be kept aboard.

This cove is about midway between Cape l'Etoile and Playa Parda; and is a very advantageous place to stop at.

Bay opposite to Cape l'Etoile.

Opposite to Cape l'Etoile, is a Bay with anchorage in 17 fathoms, in a well sheltered situation. From Cape l'Etoile to the entrance of the Gulf of Xaultegua, the shore is straight and precipitous, and the hills are barren and rocky. On the opposite shore there are a few inlets, but the most useful one for the navi-

Half Port Bay.

gator is HALF PORT BAY, rather more than a league to the east of Cape Monday. It is immediately round the south side of a deep inlet. It is merely a slight indentation of the coast.

The Beagle anchored here on two or three occasions, and found it to be an excellent stopping place; the anchorage is within two-thirds of a cable's length of the west point, in 16 fathoms, muddy bottom. The situation of this cove was ascertained by observation to be in lat. 53° 11′ 36″ and lon. 73° 14′ 57″ W. (or 2° 20′ 56″ west of Port Famine.) There is a plan of this bay.

" The land on the S. W. side of the anchorage is high and thickly wooded from its summit to the water's edge. On the the eastern side it is lower, the vegetation more scanty and the trees crooked and stunted, and pressed down to the N. E. by the prevailing winds. S. W. by W. from the anchorage, is a re-

markable cleft in the summit of the highland, from which a narrow stripe cleared of jungle descends to the water's edge, apparently formed by the descent of a torrent or of large masses of the rock.* The anchorage is well sheltered from prevailing breezes, and the holding ground is good: water and fuel are abundant."—Stokes' MSS. Half Port Bay.

There is an anchorage under Cape Monday for small vessels, in which Byron anchored,† and rode out a heavy gale of wind. With the exception of a shoal in midway of the entrance, on which there is 4 fathoms, it seems to offer good shelter from the prevailing winds. On the west side of Cape Monday is Cordova's Medal Bay (Puerto de la Medalla), of which a very full but florid description is given in the appendix of that voyage.‡

It has, according to the description, an island in the entrance which forms two channels, the easternmost of which is only deep enough for boats, but the western is 25 fathoms wide; it is strewed half way across with kelp; but between the kelp and the island is a good and clear passage with 6 fathoms, sandy bottom. In the kelp there is not less than 4 fathoms, and inside it the depth is 9, 8, and 7 fathoms, sandy bottom. To enter this port there are no dangers that are not visible, and those are easily avoided; they consist only of the islet in its entrance, and some patches of kelp, over which, however, there is plenty of water.

The Gulf of Xaultegua, improperly called Bulkeley's Channel, is a deep opening, trending into the land in an easterly direction for twenty-eight miles, and approaching within two miles of some of the inlets on the north-west side of Indian Sound. The entrance is about four miles across, but afterwards expands to a width of nearly fifteen miles. At the entrance is St. Ann's Island, between which and the south point, is a navigable channel, half a mile wide. St. Anne's Island is about two miles long, and extends in a W. N. W. and E. S. E. direction; off its N. W. end is an islet, and there is another close to its S. W. extremity. Gulf of Xaultegua.

The land forming the north side of the strait, between the Gulf

* More probably by the effect of a gust of wind, which to the eastward, particularly in the Gabriel Channel, is very common.

† Hawkesworth, vol. I. p. 73. ‡ Ultimo Viage, Appendice, p. 49.

Gulf of Xaultegua.

of Xaultegua* and the Jerome Channel, is called Croker Peninsula.

The plan that was made of the gulf is little more than eye sketch. Captain Fitz Roy, who passed through it in a boat, and examined it to its termination, says: "If ever *an accurate* survey be made of the gulf, it must be when all other gulfs in the world have been examined, for it is utterly useless; and from the appearance of its shores I do not think there is any anchorage in it. Therefore, should a ship be so unfortunate as to make a mistake and get into it, she must keep under weigh until she gets out again. There is no *thoroughfare*."—Fitz Roy's Journal.

Tides.

Little has been said of the tides in this part of the strait, and, indeed, as to their rise and fall they are really of no importance, being little more than four feet. It is high water, at full and change, in all part within a few minutes of noon. The current sets constantly to the eastward with more or less strength.

Between Capes Notch and Quod, the current set us two miles to the eastward in three hours and a half; and from Cape Quod to Port Gallant, we found the current had favoured us six miles in three hours and a half. The ebb tide sets to the eastward.

* The name of Xaultegua is from Sarmiento, who very correctly describes it.—Sarmiento, page 206.

SECTION VI.

Strait of MAGALHAENS—Sea Reach, including Capes Victory, Pillar, and the Evangelists.

Between Elizabeth Island and the western end of Long Reach there is very little swell. In a heavy gale, or, perhaps, even a strong breeze, a short sea may be experienced in the wider part of the strait, particularly near, and to the westward of Cape Froward; but nothing to be compared to the confused, breaking swell that runs in the Sea, or Western Reach. It was felt by the Beagle when beating to the westward, immediately on reaching Cape Providence. There seems to be no danger for vessels beating through the strait hereabouts, the shore being bold to. Byron passed a night, and a very tempestuous one, here; as did also the Beagle, the latter not being able to find anchorage before night. Captain Stokes, upon this occasion, writes: "We continued beating to windward, the wind squally and weather rainy. The coast on both sides is bold. Our boards were directed during the night, which was very dark, by the sight of Cape Upright when on one shore, and of Cape Providence when on the other. We commonly tacked at the distance of a mile from either shore." Heavy swell in Sea Reach.

A league to the westward of Cape Monday is an inlet, which we suppose to be Sarmiento's Puerto Angosto. Upon its west head is a conspicuous round mount, and to the north, between the mount and a projecting point, is a confined but very snug and commodious cove for a small vessel, in 17 fathoms, at a quarter of a mile within the head. Puerto Angosto. Anchorage near it.

In consulting the appendix to Cordova's voyage, it would seem that this projection is an island, insulated by the inlet here

Puerto Angesto.

called Puerto Angosto. The description runs thus:—"A bay formed in the Tierra del Fuego, between Cape San Ildefonso (Upright), and an island in the eastern part of its mouth. The figure of the island is triangular, and its N. E. point lies in the line of bearing of Capes Lunes (Monday), and San Ildefonso (Upright). At the east end of the island is an inlet running to the south-west, one mile and a third wide and a league long, to the bottom of the bay; the south-east side of the island being one mile and a half long. To the westward, the distance between the shore and the island is much more, and the direction of the second channel is N. ¼ W. The bay, whose greatest breadth is two leagues, has at its bottom, and towards the S. E. part, the mouth of an inlet, the course of which disappears behind the mountains, in a S. ¼ E. direction. There appeared to be a good anchorage between the island and the eastern shore, but we had no bottom with 30 fathoms."*

There seems to be no doubt that the island above described is the projecting point four miles to the west of Cape Monday, and that Sarmiento's Puerto Angosto insulates it; but the Spanish chart is so vague, and our own so imperfect in this part, that I prefer leaving it to future examination, rather than invent an island; although, from the Spanish account, there seems no reason to doubt its existence.

Upright Bay.

Of UPRIGHT BAY we know little. The Adelaide rode out a gale from the eastward with her stern in the surf of the beach, and the Beagle anchored under the east side of the cape, at about half a mile S. W. of the rocky islet, and, for shelter from westerly winds, found it to be very good. Of this Captain Stokes says:—"We anchored at a cable's length off a small patch of light-coloured shingle beach, situated at the west side of the bay, in 22 fathoms, sandy bottom. The anchorage, though affording excellent shelter from the prevailing winds, is bad with a southerly one; for the steepness of the bottom requiring a vessel to anchor close to the shore, sufficient scope is not left for veering cable. There is a plan of the bay in Hawkesworth from Byron's account, who anchored in the south-

* Ultimo Viage, Appendice, p. 62.

ern part of the bay, perhaps under the lee of the islands to the S. E. of the cape.

Cape Upright bears due south five miles from Cape Providence. It has a rocky islet a quarter of a mile off its east extremity, surrounded by kelp, which also extends for some distance from the cape towards the islet, at the end of which there are 7 fathoms. Cape Upright.

Cape Providence is a rugged rocky mountain, higher than the adjacent coast; it is deeply cleft at the top, and, when bearing about north, the western portion of its summit appears arched, the eastern lower and peaked. When the cape bears E. by S. (*mag.*) distant about one league and a half, a little round rocky islet will be seen open of it, about one quarter of a point of the compass more southerly."—Stokes' MSS. Cape Providence.

There are some anchorages on the right, to the N. E. of Cape Providence, according to a plan given in Hawkesworth's Collection of Voyages, but they are too much out of the way, as well as very open and exposed to southerly winds, to be of use, or to offer any security to vessels bound through the strait. Anchorages near Cape Providence.

The distance from Cape Providence to Cape Tamar, is nine miles and a half; in this space the land arches inwards, and forms a bay about a league and a half deep. Captain Stokes describes the coast to the east of Cape Tamar to be formed into two large bights by the land of Cape Providence. On the western side of the latter are several islands, of which two are conspicuous; they are round and of a good height, and well wooded; at a distance their form is conical, the eastern being the lowest. Between them is a passage to two good anchorages, which Lieutenant Skyring, who examined them, considered even more sheltered than Tamar Harbour. Cape Tamar.

Four miles to the eastward of Cape Tamar is Round Island, to the N. W. of which is a well sheltered anchorage, but with deep water. In standing in, pass midway between Round Island and an island to the westward, which lies close to the shore, and haul round the latter to the mouth of a cove, in the entrance of which, near the south shore, there are 23 fathoms, sand. The shore, to the N. and N. E. of Round Island, is very rocky. On the east side of the promontory of Cape Tamar, is the use- Anchorage near Round Island.

Tamar Harbour.

ful and excellent anchorage of TAMAR HARBOUR. It is scarcely two miles wide, and rather more than half a mile deep. Its entrance is not exactly free from danger, but, with attention to the following directions, none need be apprehended. There is a

Directions.

sunken rock between a group of rocky islets, one-third over on the western side, and a patch of kelp, one-third towards the eastern side of the bay. With a westerly wind it would be advisable to give the outer rock a berth of two cables' length to avoid this danger, on which there are only 9 feet of water, and upon which the Beagle struck.

Leading mark for sunken rock.

"An excellent leading-mark for this shoal, is a whitened portion of bare rock, looking like a tombstone, about one-third of the way up the green side of the mountainous land that forms the coast of the bay. This stone bears N. 76° W. (by compass) from the rocks to be rounded on entering the anchorage."*

The least water found among the kelp on the east side of the channel was 4½ fathoms, and near and within the edge towards the rocky islets there are 7 fathoms; so that with the lead in hand, and a look out for kelp, which should not unnecessarily be entered, there is no real danger to be apprehended. The Beagle anchored at about one-third of a mile from the back of the bay. The plan will shew what is further necessary to be known of the anchorage.

High water at full and change.

High water at full and change takes place in Tamar Harbour at $3^h\ 5'$, and the perpendicular rise and fall is five feet.

Tides.

The flood tide on this part of the northern shore of the strait sets to the eastward, and rarely exceeds half a mile an hour. At this part the strait is seven miles wide; at Cape Phillip, to the westward, the breadth increases to five leagues; but at Cape Parker it narrows again four leagues, which breadth it keeps to the end.

Tamar Island.

To the westward of Cape Tamar is TAMAR ISLAND. It is high, and is separated from the land of the cape by a deep channel from half to one mile wide. Half a mile off its S. W. end is a rock.

Between Capes Tamar and Phillip, a space of four leagues,

* Stokes' MSS.

there is a deep bight, with two openings; the easternmost, in which are GLACIER and ICY SOUNDS, extends to the N. E. for ten miles from the mouth, and the westernmost is the commencement of Smyth's Channel. The rocks, called the Straglers, extend to a considerable distance to the S. W., as far as three miles within the line of bearing between Cape Phillip and Tamar Island.

Glacier and Icy Sounds.

Straglers.

Under the lee (the N. E.) of CAPE PHILLIP is SHOLL'S BAY, in which the Beagle anchored in 1827. Of this place Captain Stokes writes:—"We found, there, an excellent anchorage in 15 fathoms. It is valuable for vessels working through the strait to the westward, inasmuch as, from the discontinuous nature of the northern shore, (which here is formed into deep bays,) this place will be much more easily recognized than the anchorages on the opposite coast; besides the winds hang here, in general, somewhat to the northward of west, hence a better starting-place for the westward is obtained. Here, as in every anchorage on the strait, water and fuel are easily procured; but nothing more, unless we except the wild berries, (*Berberis, sp.*) celery, muscles, and limpets; the wild goose abounds here, but its nauseous, filthy taste, renders it uneatable. No inhabitants, no quadrupeds."*

Sholl's Bay.

Productions.

Of the coast of the strait on the south side, between Cape Upright and Valentine Bay, we know very little; there are several deep bights and spacious bays, which may contain anchorage, but, in general, they are not found in the large harbours, which are mostly deep, precipitous chasms or ravines in the rock. The smaller coves, or where the land shelves down to the sea, are more likely to afford anchorages.

Coast between Cape Upright and Valentine Bay.

In the appendix to Cordova's work are descriptions of some anchorages, which it may be useful to mention here: it says, "In rounding Cape (Ildefonso) Upright we found ourselves in a bay, not very deep, two miles across, divided in its centre by many islets and rocks extending to the north; the outer or northernmost of which bears west from the extremity of the cape. One mile N. W. ¼ N. from the northernmost islet is a round rock, which is of dangerous approach."

Anchorages near Cape Upright.

* Stokes' MSS.

Anchorages to the west of Cape Upright.

To the westward of this bay is another, three miles wide, and about as deep; the whole of it, partienlarly towards the eastern part, is full of islets, and at the bottom is a narrow canal trending to the S. S. E. At the western end of this bay, called by Wallis the Bay of Islands, from the number it contained, commences a third, which, with the two preceding, make the great bay, called by the Indians, according to Sarmiento, ALQUILQUA. It is contained between Cape Upright and a bold projecting point, ten miles to the W. N. W., called Point Echinique. The country is there described to be poor, and the vegetation scanty.

Cuaviguilgua and Port Uriarte.

The eastern point of the Third Bay has a string of islets extending a mile to the north; and to the south-west are several others.* And on its east side is a bay called CUAVIGUILGUA; and a little beyond it, at the bottom of the bay, is PORT URIARTE, the mouth of which is two cables' length across.

Port Uriarte was carefully sounded, but the bottom is generally bad and stony, with 5, 8, 14, to 18 fathoms. The harbour is surrounded by high mountains, rising vertically, and with only a few stunted trees on the shores. Its greatest extent, which is from north to south, is half a mile; the mouth is not visible until close to it: its bearing from Cape Providence is S. 42° 30′ W. There is no danger in entering it but what is visible; but it is not recommended as a good harbour from the foul ground all over it. A little to the eastward also of Point Echenique is CAPE SANTA CASILDA—a low point.†

To the west of Point Echenique is a harbour two miles and one-third wide, the points of entrance bearing N. W. and S. E. There is an island in the centre forming two channels, but with very deep water, no ground being found within 55 fathoms.

Puchachailgua.

At the bottom is a canal trending to the S. S. W., and disappearing between the mountains. On the eastern side of the island the channel is at first a mile wide, but afterwards narrows gradually: the western channel is scarcely two cables' length across. The shores are high precipitous mountains. The Indians, according to Sarmiento, call the place PUCHACHAILGUA.

* Ultimo Viage, Appendice, p. 56 and 57. † Ib, p. 61.

The Canal de la Tempestad (or Stormy Channel), from the description, is not to be recommended. The water is very deep all over, and the place affords no security for vessels of any description.* To the westward is a better harbour, which the Spanish officers thought to be Sarmiento's Port Santa Monica. It bears S. S. W. from Cape Tamar, and it is fourteen miles to the westward of Cape Upright, but not more than 3 leagues according to Sarmiento's account.† Canal de la Tempesta l. Port Santa Monica.

Two thirds of a mile to the westward, is a point with two islets off it, round which is Port Churruca, a deep and spacious bay, two miles wide, the points bearing E. S. E. and W. N. W., containing two ports and some coves, but with very deep water, and therefore useless, for it would be necessary to make fast to the rocks to secure a vessel.‡ Port Churruca.

To the westward of this we have laid down a useful cove, Darby Cove, in which small vessels may obtain good shelter. Darby Cove.

From Darby Cove the coast extends to the N. 65° W. for seven miles, having in the interval several indentations, but all with deep water; at Point Felix the land trends deeply in to the south-west, and forms a bay five miles wide and two and a half deep. At its western side is Valentine Harbour, in which the Beagle anchored, of which there is no written description in Captain Stokes' Journal: the plan, however, will shew the nature of the anchorage, which seems to be commodious and secure, and of easy approach. On hauling round the island, there are some islets half a mile off, which must be avoided, but otherwise there seems to be no dangers. Valentine Harbour.

The anchorage, as a stopping place, is in from 20 to 26 fathoms, sand, at nearly a quarter of a mile from either shore: a more sheltered situation may be obtained to the south-west.

The latitude of the mount (marked in the plan) is 52° 55′ 05″, and lon. 74° 15′. Variation of the compass 24° 10′.

Cape Cuevas, the extremity of an island that is close to the shore, is in lat. 52° 53′ 19″, and lon. 74° 17′ 30″. Between it and Cape Valentine the coast forms a bay with islands in it. To the westward, also, of the cape, the coast is broken, and forms Cape Cuevas.

* Ultimo Viage, Apendice, p. 64. † Ultimo Viage, p. 150; Apendice, p. 63 and 64.
‡ Ibid, Apendice, p. 68.

some sinuosities. A league N. W. ½ W. from Cape Cuevas, is
Truxillo Bay. the east part of TRUXILLO BAY, which was not examined.

The Spanish account describes it to be one mile and three-quarters wide, in the direction of N. W. and S. E., and half a mile deep. At the bottom there is a port with an entrance half a mile across, bearing nearly North and South. It is a well-sheltered port, trending W. S. W. for one mile and a quarter, with two small basins at the bottom. The depth is very great, but close to the west shore there are 8, 10 to 13 fathoms, on sand and coral. Near the mouth the depth is great, and generally of stones. There are several banks buoyed by sea weed, but in none was there less than 7 fathoms water.*

There is plenty of wood and water in Truxillo Bay, but nobody will visit it in preference to TUESDAY BAY, or, rather,
Tuesday Cove. the more convenient anchorage of TUESDAY COVE, situated three-quarters of a mile south of Cape Cortado. The anchorage is in 12 to 14 fathoms. Tuesday Bay is larger, and, therefore, more exposed to the squalls; but for a ship, perhaps, might be more convenient.

On the north shore of the strait, opposite to Cape Cortado, is
Cape Parker. CAPE PARKER, a remarkable projection with three hummocks on the summit of the high land which rises over it. To the eastward the coast trends deeply in to the north, forming a bay, the eastern head of which, Cape Phillip, bears S. 97° E. nine miles. There appeared to be several islands in the bay, and at the bottom a narrow opening, perhaps a channel, leading to the north.

On the west side of the bay the coast is indented, and affords some anchorages, but the approach is not clear. The first bay, however, to the eastward of the S. E. trend of the cape seems to afford a good stopping-place; but it is fronted by a considerable shoal, with two rocky islets, the depth is from 7 to 22 fathoms.

The land of CAPE PARKER will probably turn out to be an island. To the westward of it commences a range of islands, rocks, and shoals, fronting a broken coast that should never be approached but for the purpose of discovery or seal-fishery,

* Ultimo Viage, Appendice, p. 81.

The easternmost island is WESTMINSTER HALL,* a high, rocky island; and there are two or three other conspicuous points such as the CUPOLA and OBSERVATION MOUNT, that might be noticed. The Beagle ran in amongst the breakers, and anchored near the latter, for the purpose of ascertaining its position, and obtaining bearings for the survey. Westminster Hall.

SIR JOHN NARBOROUGH'S ISLANDS consist of 8 or 10 principal islands, and, perhaps, hundreds of smaller ones. Behind them there seemed to be a channel, and amongst them are several anchorages, but none to be recommended, especially when on the south coast there are two or three much better, much safer, and of much easier access. Sir John Narborough's Islands.

It is a dangerous coast, as well from the immense number of rocks, upon which the sea breaches very high, as from the tides, which near the edge of the line of shoals set frequently in amongst them.

A league to the westward of Cape Cortado, is SKYRING HARBOUR; its entrance is one mile and a quarter wide, and afterwards half a mile, and trends to the S. W. by W. for one mile and a half, and then terminates in a cove extending half a mile to the S. E. with 10 fathoms in it. There are some islands in it, and anchorage might be obtained in 27 fathoms. Skyring Harbour.

At three miles and a half from the west point of Skyring Harbour is the east head of the HARBOUR OF MERCY, (Puerto de la Misericordia of Sarmiento†, Separation Harbour of Wallis and Carteret,‡) one of the best anchorages of the western part of the strait, and being only four miles within Cape Pillar, is very conveniently placed for a ship to anchor at to await a favourable opportunity for leaving the strait. The plan will be a sufficient guide; for there is no danger in entering. The depth is moderate, 12 to 14 fathoms, and the holding-ground excellent, being a black clay. A ship may select her position; but the one off the first bight round the point being equally well sheltered, and much more convenient for many purposes, is the best berth. Harbour of Mercy.

The observations for latitude and longitude were made upon

* Narborough, p. 77. † Sarmiento, p. 182.
‡ Chart of the Strait of Magalhaens in Hawkesworth, vol. I.

Harbour of Mercy.

the largest of Observation Islets, the summit of which was found to be in lat. 52° 44′ 57″, and lon. 74° 35′ 31″; the variation is 23° 48′.

Three miles to the westward of the largest Observation Islet, is Cape Pillar, upon which Captain Stokes landed, on 25th February, 1827, but not without considerable difficulty, owing to the great swell that then, and indeed always, prevails near it. Here he observed the latitude. Captain Fitz Roy also landed in a cove under the cape in 1829, with his instruments, to obtain bearings from its summit; but the difficulty of the ascent was so great that he did not risk the destruction of them.

Situation of Cape Pillar.

The extremity of Cape Pillar is in lat. 52° 42′ 53″, and longitude 74° 39′ 31″, and Cape Victory in 52° 16′ 10″, and 74° 50′ 55″. These points form the western entrance of the strait.

Evangelists.

"The Evangelists, as they were named by the early Spanish navigators, but The Isles of Direction by Narborough, from their forming a capital leading-mark for the western mouth of the strait, are a group of rocky islets, consisting of four principal ones, and some detached rocks and breakers. The islands are very rugged and barren, and suited only to afford a resting-place or breeding-haunt of seals and oceanic birds. There is landing on one of the islands, and anchorage round them, if necessary. The largest and highest may be seen in tolerably clear weather, from a brig's deck, at the distance of seven or eight leagues.* The southernmost, from its shape called the Sugar Loaf, is in latitude 52° 24′ 18″ and longitude 75° 02′ 56″. From the Sugar Loaf, the extremity of Cape Pillar bears N. 38°, W. twenty-three miles and a half, and from Cape Victory, according to Captain Stokes's survey, S. 42° W. 11 miles."—Stokes' MSS.

The tides here are very variable, and sometimes set to the E. N. E. towards the rocks that front Cape Victory and Sir John Narborough's Islands.

* We saw them twenty-two miles off, from the Adventure's deck.—P. P. K.

SECTION VII.

Of the Sea, *or* Outer Coast, *of* Tierra del Fuego, *from Cape* Pillar *to Cape* Diego *in Strait* Le Maire, *by Captain Robert Fitz Roy, R.N.*

[*In this Section references (printed in Italics) are made to a work published by Captain Fitz Roy, entitled "Views of the Coast, taken on board His Majesty's Surveying Vessel, Beagle, 1829 and 1830."*]

Western entrance of the Strait of Magalhaens.

Evangelists.

The western entrance to the Strait of Magalhaens is easily known by the wide opening between Sir John Narborough's Islands and Cape Pillar. The Evangelists shew themselves distinctly at six miles distance; they are four barren rocks, about one hundred feet above the sea.—(See page 84.)

Diana's Peak.

On the north side of the strait, near Cape Victory, is a remarkable height, called Diana's Peak.—*(See Sketch* 1.*)*

Westminster Hall.

Westminster Hall is remarkable, but the land about Cape Pillar cannot be mistaken, after a glance at the chart (*and the Views, Nos.* 2 *and* 3).

Approach to Cape Pillar.

Directions.

In making the land and approaching the strait, a ship should keep well to the northward of Cape Pillar, and should, indeed, close the Evangelists, unless the wind has southing, because there is a strong current which sets across the entrance of the strait, directly towards the dangerous cluster of rocks called the Apostles and Judges. It follows the trend of the coast, and would set a ship many miles to the southward of Cape Pillar if she stood in for it without making proper allowance. It runs from one to two miles an hour, according to the winds that are or have been prevalent.

When fairly within the strait, a ship should close the southern

First anchorage.

shore. If intending to anchor, the first anchorage is the HARBOUR OF MERCY, four miles from Cape Pillar, its place is shewn by five small islands, round which you pass and haul in to the anchorage.—(See page 83.)

Close to Cape Pillar are two small rocks, called the Launches: they are not more than three cables' length from the shore.

The cape and the shore on each side is steep to. Off the cape, at two miles distance, are 60 and 70 fathoms, fine sand.

Apostle and Judge Rocks

Proceeding along the outer, or south-west coast, the APOSTLE (*view No.* 6) and JUDGE Rocks show themselves; they are some feet, from five to fifty, above the water, but many breakers shew near them, and indicate an extensive reef. The outer rock is four miles from the land. Eleven miles from Cape Pillar is

Dislocation Harbour.

DISLOCATION HARBOUR (*view No.* 5), a place of refuge for an embayed or distressed ship, but unfit for any other purpose; its entrance is rendered difficult, to the eye, by rocks, on which the sea breaks violently; and by two rocks under water, on which the sea does not *always* break, but whose place is accurately shewn in the plan of the harbour. (*For the appearance of this part of the coast look at the Sketches Nos.* 5, 6, *and* 7.) The place of Dislocation Harbour is pointed out by the heights, called

Law and Shoulder Peaks.

LAW and SHOULDER Peaks, they are the most remarkable on that part of the coast, and immediately over the harbour.

Direction for Entering Dislocation Harbour.

To find the entrance, steer for the peaks, look out for the weather and lee rocks, both several feet above water, the sea breaking violently on them, and when within four miles of the shore you will distinctly see the opening from the mast-head. In going in, avoid the two rocks at the entrance, and anchor in the innermost part; only a small ship can get out again without a fair wind. The prevailing winds send in a swell, but the place is quite secure. Water may be obtained very easily, the boats can lie in a stream which runs from the mountains, and fill alongside. Wood is plentiful. Four small vessels may lie in security; the bottom is very even, from 15 to 25 fathoms, fine white sand.

The entrance is narrow, exposed to the prevailing wind and swell, which might, for days together, prevent a vessel from getting out to sea. Two miles from Dislocation Harbour, is CAPE

DESEADO, the highest land hereabout, and remarkable; a rocky islet lies one mile off shore. Cape Deseado.

From Cape Deseado the coast runs high and unbroken for about two miles, then there is an opening, not examined. Coast to the east of Cape Deseado.

Several islands succeed for a space of two miles, after which you open BARRISTER BAY, an exposed place, full of islets, rocks, and breakers, and unfit for any vessel.

CAPE SUNDAY is the next headland; it is high and prominent (*see No.* 7). Two islets and two dangerous rocks lie off it, they are shewn in the chart. Cape Sunday.

This cape is on one of a cluster called the WEEK ISLANDS. At their south side is a roadstead, with good holding in 18 or 20 fathoms, coarse gravel and sand, with patches of rock. It is exposed to southerly winds and to those from the west, therefore I should not advise a vessel to anchor there. Between the islands is a snug berth for a small vessel, quite secure, but difficult of access. The Beagle lay at anchor there one week, in 24 fathoms, good holding ground. Week Islands. Anchorage among them.

The eye must be the chief guide in entering most of these places; they are of one description—inlets between high land, having, generally, deep water, with kelp buoying the rocky places. Flaws of wind and violent gusts off the high land render the approach to them difficult, and, to a large ship, impracticable.

There are, however, anchorages on this coast fit for a fleet, which will be mentioned in their order.

Six miles south of the Week Islands are the LANDFALL ISLANDS, (*Nos.* 9, 10, *and* 11,) so named by Captain Cook, from seeing them first when he visited this coast. Landfall Isles.

CAPE INMAN is a very remarkable head-land at their western extremity.—(*See Nos.* 7, 8, *and* 9.) Cape Inman.

Behind the island, of which it forms the most conspicuous part, is LATITUDE BAY, an anchorage decidedly good, though somewhat exposed to a swell thrown in by heavy north-west winds. Latitude Bay.

The Beagle rode out a heavy gale from that quarter, though having anchored too far in, she was exposed to rollers. The plan shews the best anchorage, (*and the sketch annexed how to find it, see No.* 11).

Anchorage between the Landfall Islands.

Between the islands is a snug berth for a vessel not drawing more than twelve feet, in perfect security, smooth water; and a vessel should not moor in less than ten fathoms, as close to the west shore as possible, with an anchor to the eastward, in the event of the wind blowing from that quarter. Water and wood are plentiful, as is the case in every Fuegian harbour.

Otway Bay.

Behind, or to the eastward of the Landfall Islands, is OTWAY BAY, an extensive space of water, surrounded by broken land, islets and rocks. Many of the latter are scattered about, and render it unfit for any vessel. It is probable that passages lead hence to the Straits of Magalhaens, as deep inlets run in that direction as far as the eye can reach, from the Landfall Islands: they were not explored for want of time.*

Off CAPE INMAN are several detached rocks, on which the sea breaks violently, and gives them a formidable appearance. The outermost one is not two miles from the shore, and shews itself plainly.

Cape Schetky.

CAPE SCHETKY is a remarkable double-peaked height, at the south extremity of the Landfall Islands, some rocks just awash lie off it, distant one mile. The *true* course along shore, after giving the Apostles a proper berth, is S. 29° E., as far as the latitude of Cape Tate, (*No.* 12,) the southern limit of Otway Bay.

Cape Tate.

College Rocks.

Off CAPE TATE, which is rather high, and rounded at the summit, are several clusters of rocks, called the COLLEGE ROCKS: they are only seen when near the land.

Fincham Islands.

The FINCHAM ISLANDS next are noticed in passing along shore. There are many islets and rocks near, and very many scattered between the islands and Cape Tate. As a reference to the chart will shew, there is no good anchorage hereabout, the coast is very dangerous and unfit to be approached. The Beagle tried to anchor in DEEPWATER SOUND, but failing to find a proper depth of water, was obliged to drop her anchor upon the shelving end of a small island, being too far up the sound to get out again before dark.

Bad Anchorage.

Deepwater Sound.

* It seems probable that a communication may exist between this inlet and the Abra, in the Strait, opposite Playa Parda. See page 71.—P. P. K.

Between the Fincham Islands and Cape Gloucester, is BREAKER BAY; a large wild place, full of rocks and breakers, and exposed to all the strength of the west winds. I had neither time nor inclination to examine it, for I never saw a place more unfit for the approach of a vessel. The surrounding coast is broken into islands, islets, and rocks, almost innumerable. Breaker Bay.

CAPE GLOUCESTER is a very remarkable promontory, and cannot be mistaken. (*See Nos.* 13, 14, 15, 16, *and* 17.) At a distance it appears to be a high, detached island; but, on a nearer approach, a low neck of land is seen, which connects it with the largest of the Grafton Islands (*No.* 18). A rock (on which the sea breaks) lies nearly one mile to the north-west; there is no other danger. The cape may be passed quite close, being steep to. Cape Gloucester. Description.

Cape Gloucester is a guide to EUSTON BAY, (*Nos.* 19, 20, *and* 21,) one of the best anchorages on this coast, one which can be approached and left with any wind, without risk, and in which a fleet may lie in perfect security from all but the S. E. winds, the least prevalent of any on this coast. Euston Bay, a good Anchorage.

The GRAFTON ISLANDS extend about twenty miles in a south-east direction from Cape Gloucester; between them are several anchorages, but the best and easiest of access is Euston Bay. Grafton Isles.

Passing Cape Gloucester, you see a high island to the south-east, distant seven miles; this is Ipswich Island (*Nos.* 19 *and* 20). Between it and Cape Gloucester is a bay, in which are many rocks and breakers. Ipswich Island.

Rounding Ipswich Island, you must give a good berth to the rocks under water, which lie one mile from its south-east extremity. The sea does not always break upon them, but it does generally. Their place in the chart may be depended upon. There is no other hidden danger. After clearing these rocks, pass close to Leading Island, (*Nos.* 19 *and* 20,) and steer for the opening of LAURA BASIN, which you will see under a high peaked mountain (*Nos.* 19, 20, *and* 21). Choose your berth by the eye, if intending to anchor in the bay, or work as far up the passage to the basin as you think proper, then anchor and warp to the berth marked in the plan. Directions. Laura Basin.

The Beagle worked up all the way against a fresh wind blowing directly out. There is water for a frigate in the basin, but it is better suited to a small vessel. Large ships should anchor

Good Harbour.

in the bay; and as the bottom is even and good, and the bay capacious, exposed only to south-east winds, which come on gradually and seldom blow hard, it may be considered a fit place for ships of any size, or for a squadron. Wood and water are plentiful, and easy to be obtained. The depth of water in the bay varies from 5 to 20 fathoms—the bottom generally fine speckled sand.

Bed of Kelp across the Harbour.

A large patch of kelp lies across the entrance of the harbour, but there is no danger beneath it, except for a line-of-battle ship, as in one spot there are 4 fathoms only. This kelp was very closely examined, and its safety satisfactorily proved.

Other Anchorages.

There are other anchorages among these islands, but none fit or desirable for a ship while so near Euston Bay.

Hope Harbour.

Hop Harbour is one of those formerly used by sealing vessels.

Isabella Island.

Under Isabella Island is an anchorage fit for a sealing vessel, but no other. Rocks lie in the way to it, as the chart shews; the Beagle passed a night there, but not by choice.

Appearance of the Grafton Islands.

The Grafton Islands are high, and the remarks on the general character of the coast are applicable to them. (*See No.* 21.) Behind them lies a passage, through which a sealing vessel has passed. To the north-east of it is a mass of land, broken into islets and rocks.

Having passed Cape Gloucester, your attention is drawn to

Noir Island.

Noir Island, of moderate height, about six hundred feet above the sea, and having a remarkable neck of land to the south-west, ended by a rock like a steeple, or tower. (*See Nos.* 22, 23, *and* 24.) One mile south of this point is a sunken rock, over which the sea occasionally breaks: two other breakers are in the bight close to the point.

Noir Roads.

There is an excellent roadstead under the east side of Noir Island. Several ships may lie there, secure from all winds between north and south by the west, over a clear, sandy bottom. Wood and water plentiful, and easily obtained. There is a cove at the south part of the island, where boats would be perfectly

safe in any weather, but the entrance is too narrow for vessels of any kind.

Number of Rocks.

The large space between Noir Island and the AGNES ISLANDS is extremely dangerous for shipping, being scattered with rocks, some just awash, many shewing themselves several feet *above*, others *under* water. Still there is abundant room to go round the island in perfect security, therefore no ship need fear being hampered by an east wind, in the event of anchoring in Noir Roads. A rock lies in the roads, and another, a very dangerous one, four miles to the eastward: they are exactly laid down in the chart.

Tower Rocks.

Seven miles south of Noir Island are the TOWER ROCKS (*No.* 23); they are high, quite steep to, and exactly laid down in the chart. A ship may pass close to either side of them.

Dangers in the entrance of Melville Sound.

Between Noir Island and CAPE SCHOMBERG, on London Island, lie many reefs, and a great number of detached outlying rocks, which render this part of the coast extremely dangerous and unfit for vessels. No chart could guide them; they must trust to daylight and clear weather, with a good look out, if necessary to enter or leave the Barbara Channel, which opens into this bay.

Agnes Islands

The AGNES ISLANDS, and those in their neighbourhood, do not require any description. They are so fortified by outlying rocks, as not to be fit places for the approach of any vessel.

Stokes Bay.

Northward of them is STOKES BAY, and to the eastward a number of islands, between which is the Barbara Channel.

Bad place for shipping.

No vessel ought to entangle herself in these labyrinths—if she does, she must sail by eye. Neither chart, directions, nor soundings, would be of much assistance, and, in thick weather, her situation would be most precarious.

Milky Way.

Between Noir and Kempe Islands, (*No.* 25,) is the MILKY WAY, a space of sea, in every part of which rocks are seen just awash with, or a few feet above, the water. On them the sea continually breaks.

Beagle's Track.

The Beagle passed in shore of them all, close to the Agnes, Kempe, and Fury Islands; but I should not advise any vessel to follow her track, nor is there any probability of its ever being attempted.

This part of the coast only requires to be known to be the more avoided.

Fury Harbour. At the south side of Fury Island is FURY HARBOUR, a bad place, unfit for any vessel. The Saxe Coburg sealing schooner was lost in it in the year 1827. There is little shelter, and very bad ground. (See page 42.)

Between Fury and London Islands is the entrance of the Barbara and Cockburn Channels. (*No.* 26 *b.*) Rocks shew themEast and West Furies. selves in every direction,—the two clusters called East and West Furies being the most remarkable. They have been much frequented by sealing vessels' boats, fur seal being numerous upon them at times. (See page 42.)

Remarkable Mountains in MelvilleSound. Four remarkable mountains point out the entrance to the Barbara Channel very distinctly. The KEMPE PEAKS (*No.* 25) are high, and shew three points. The FURY PEAKS (*No.* 26 *a*, *and No.* 27) are high and divided. MOUNT SKYRING (*No.* 26 *a*, 26 *b*, *and* 27) is high, and has a single peak. ST. PAUL'S is similar to, and in one view, from near Fury Island, appears very like the dome of the cathedral whose name it bears.

Rocks off the Barbara Channel. The situation of the rocks off the channel's entrance, as laid down in the chart, is accurate; but no vessel should attempt to pass them without daylight and clear weather, so that she may sail more by a good eye at the mast-head, than by any chart.

North Cove. At the north side of Fury Island is a snug and perfectly safe anchorage, called NORTH COVE (see page 42). It is, however, only fit for small vessels. When there, they are in security; but it must be remembered that there is no anchorage in the channel, nor until you get into the cove, unless you close the weather shore, and find a creek, in which the anchor will hold you temporarily. At the north side of Mount Skyring is another anchorage, Tom's Harbour (see page 42), fit for small vessels. The Adelaide, tender to His Majesty's sloop Adventure, anchored in it when exploring these parts.

Soundings on the coast. There are soundings over all the tract of sea between Noir and London Islands, seldom exceeding 60 fathoms, and near the rocks diminishing to 20, 15, and 10.

London Island. LONDON ISLAND is one of a large group called the Camden Islands. At its east end is a safe anchorage called TOWNSHEND

HARBOUR (*No.* 27). The HORACE PEAKS (*No.* 27) point out its situation. Some rocks, on which the sea breaks violently, lie off the islands, and near the entrance of PRATT PASSAGE. They are exactly laid down in the chart. As there are no soundings in less than 50 fathoms after passing these rocks, and getting into the passage, you must depend upon the wind lasting to carry you into or out of the harbour. The holding ground in it is excellent, and though you have tremendous squalls off the high land to the westward, there is no fear of an anchor starting. The Beagle lay here, moored, during the worst weather she had on the coast. A very high sea was raised outside by a violent southerly gale, but she remained in perfect security without moving an anchor.

Townshend Harbour and Horace Peaks.

Good holding ground.

Beagle moored here.

The lee side of high land, as I have elsewhere remarked, is not the best for anchorage in this country. When good holding can be found to windward of a height, and low land lies to windward of you, sufficient to break the *sea*, the anchorage is much preferable, because the wind is steady, and does not blow home to the heights. Being to leeward of them is like being on the west side of Gibraltar Rock when it blows a strong Levanter.

Between, and to the northward of these islands, are passages with deep water, numbers of islets and rocks, and anchorages opposite to most of the valleys, or between the islands, in which small vessels could lie securely, if necessary.

BRECKNOCK PASSAGE is wide, and clear of all danger. I should prefer entering or leaving the Barbara Channel by this way, rather than by passing the Fury Rocks.

Brecknock Passage.

CAPE DESOLATION, the south point of BASKET ISLAND, is a very remarkable headland (*No.* 27); it is rugged, with many peaks.

Cape Desolation.

The next promontory which is approached in passing along the coast is CAPE CASTLEREAGH (*No.* 27); it is high and remarkable. Between this and Cape Desolation is a large space of water, called DESOLATE BAY, leading to COURTENAY SOUND, THIEVES SOUND, and WHALE-BOAT SOUND.

Cape Castlereagh.

Desolate Bay

These Sounds are practicable, but not advisable.

Rocks and breakers abound, and make these sounds quite unfit for shipping; no doubt small vessels might, in clear weather, traverse any of these passages, but it would always be with much risk, and should not be attempted without an adequate object. Such an object does not now, nor is it likely to exist.

Stewart Harbour.

Under Cape Castlereagh is an excellent anchorage called STEWART HARBOUR. It is not large, but for small vessels is an exceedingly good place, being easy of access with any wind, having three openings. A vessel may anchor in the entrance and warp in; there is nowhere more than 16 fathoms, generally from 6 to 12. Wood and water, as in every Fuegian harbour, are plentiful, and easily obtained.

Rocks.

Two rocks lie nearly in the middle, just awash at high water. The plan shews their place exactly.

A rock, on which the sea breaks, lies one mile west of the middle opening to the harbour. There is no other danger.

Farther to the south-east are the GILBERT ISLANDS, off which, eight miles S. 30° E, from Cape Castlereagh, are the NICHOLSON ROCKS.

Nicholson Rocks.

Adventure Passage.

Between the Stewart and Gilbert Islands is ADVENTURE PASSAGE, an open space, with deep water, clear of danger.

Doris Cove.

At the north-eastern side of the eastern Gilbert Isle is DORIS COVE, a safe anchorage for a small vessel. The Beagle lay there, moored, one week. There are no hidden dangers hereabouts; the eye and the chart will guide a vessel safely.

Sounds to the northward of Stewart Islands.

I say nothing of the large sounds and numerous passages lying to the northward of these and the Stewart Islands, because they are not likely to be again visited.

Londonderry Isles.

The LONDONDERRY ISLANDS are the next, they extend nearly to Christmas Sound.

Treble Island.

TREBLE ISLAND is a remarkable height, having three peaks; it is visible from a considerable distance; near it are some straggling rocks, shewn in the chart.

Phillips Rocks.

Nine miles S. 22° E. from Treble Island, are the PHILLIPS ROCKS. They are dangerous, though above water, because so far from the shore, and so low.

Cook Bay. COOK BAY is a large space between Cape Alikhoolip and Waterman Island. Broken land, islets, and breakers, surround and make it unfit for the approach of vessels. Its shores were explored by the Beagle's boats.

Beagle Channel. At the north-east is the entrance of the BEAGLE CHANNEL, and a passage to Whale Boat Sound, both unfit for sailing vessels, excepting with a fair wind.

Waterman Island. WATERMAN ISLAND (*No.* 28) is soon known by the remarkable heights at its south part. The southernmost was named by Captain Cook "YORKMINSTER," from its fancied resemblance to that building. He well describes it as a "wild looking rock" (*No.* 28).

Yorkminster.

Capstan Rocks. Eight miles west of "York Minster," and five from Point May, are the CAPSTAN ROCKS, above water about twenty feet. There are no other dangers to seaward of a line from York Minster to the Phillips Rocks.

Christmas Sound. Hauling round York Minster, you may enter CHRISTMAS SOUND. There is no hidden danger; the chart and plan are exact. ADVENTURE COVE (in which Captain Cook anchored) is the easiest of access, but it will only hold one vessel.

Adventure Cove.

March Harbour. MARCH HARBOUR is large, with good holding ground, but there are many rocky places; and one rock, under water (see the plan), having on it only one fathom; its place is marked by very thick kelp. The Beagle worked through the narrow passage, round SHAG ISLAND, from Adventure Cove, and worked into the innermost corner of the harbour without using a warp; larger vessels would of course find themselves more confined.

I do not think a vessel of more than five hundred tons should attempt to enter Christmas Sound.

Chains caught by the rocks. The Beagle lay moored in this harbour all the month of March, in perfect safety; but her chain cables became entangled with the rocks, and were not hove in without much difficulty and delay.

Port Clerke. PORT CLERKE is a bad place for any vessel, though quite secure when in it; access is difficult, and from its situation, it is exposed to very violent squalls.

Pickersgill Cove.

PICKERSGILL COVE (named by Cook), as well as Port Clerke, is unworthy of notice as an anchorage.

Description of Christmas Sound.

Cook's description of Chrismas Sound is as accurate as his accounts of other places. His "Great Black Rock" and "Little Black Rock" shew themselves as you enter. Near York Minster are several rocks and islets, *close* to the eastward; one rock, on which the sea breaks violently, lies two miles E. 20° S. from the south extreme of the Minster. You may pass it quite close. Off the "Great Black Rock," there are two or three breakers, caused by rocks under water.

But little current sets among these Islands. To seaward of them, and near the headland, it sets as I before described.

Tides

The Tides between Cape Pillar and Cape Horn are regular, as regards their rise and fall, and time of high-water, but not so with respect to their velocity and direction. It appeared to me that while the water was rising upon the shore, the tide (or rather current) set along shore from the north-west towards the south-east at the rate of one mile an hour, or more, according to the wind.

During the six hours of falling water, or ebb tide, there was little or no current setting along shore.

At Cape Pillar it is high-water at one o'clock on the days of full and change. At York Minster it is high-water at three in the afternoon.

At the intermediate places the time gradually changes from one to three as you go to the south-east.

Further eastward, high water is still later. At Cape Horn it is at half-past three.

Rise of Tide.

The rise of tide varies from four to eight feet. It is noted in each plan.

Eastward of Christmas Sound lie the WOOD ISLANDS. There is no good anchorage among them. Passages and broken land lie behind them to the northward.

Point Nativity.

Off POINT NATIVITY are two islands and an outlying rock. HOPE ISLAND is six miles to the south-east of this point.

Ildefonsos.

The ILDEFONSOS, a large group of rocks and islets, next claim attention. They are thirty-five miles distant from York Minster,

and bear from that spot S. 41° E. They extend five miles in a north-west and south-east direction, are very narrow, and about one hundred feet above the sea (*see No.* 29). They appear to be the remains of the ridge of a mountain, broken through in many places by the sea. You may pass close by them in a vessel, for there is no danger. Sealers have much frequented them for fur seals. Ildefonsos.

Neither TREFUSIS BAY nor ROUS SOUND afford anchorage. Trefusis Bay.

LEADING HILL (of Mr. Weddell) is a very remarkable double peaked height; beyond it are DUFF'S BAY, MORTON and HENDERSON ISLANDS, and the entrance of INDIAN SOUND (of Mr. Weddell). Mr. Weddell's Indian Sound.

There may be good anchorage between these islands. There was not time to examine some coves on the east side of Morton Island, whose appearance promised shelter and holding ground. Coves promising anchorage.

CLEARBOTTOM BAY is at the north end of Morton Island, and a good anchorage. It is described in Mr. Weddell's useful and interesting Journal. Clearbottom Bay.

INDIAN COVE, in which also he anchored, and remained some time, is not a place to be recommended to vessels. They must go far among the islands to reach it, and when there, have a bad rocky bottom, with deep water, excepting one corner, where the Jane lay at anchor with the Beaufoy. Many better anchorages may be attained on this coast with less trouble. Indian Cove.

INDIAN SOUND is a large tract of water, extending to the north-west. It is full of islands.

Between CAPE WEDDELL, at the east side of Indian Sound, and FALSE CAPE HORN (*No.* 33), is a tract of broken land, which has not been properly examined. It is, however, a lee shore during south-west and southerly winds, and therefore unfit for anchorage.

On HENDERSON ISLAND is a high sharp-pointed hill, which is visible at a great distance. From its summit the DIEGO RAMIREZ ISLANDS (*Nos.* 30, 31, and 32) were seen, though fifty miles distant. The highest point of these islands is about one hundred and fifty feet above the sea. There is no hidden danger near them. They lie nearly north and south, and extend over a space of five miles. Diego Ramirez Islands.

Diego Ramirez Islands.

A ship may pass between the northern cluster and that to the southward. Detached rocks lie off the southern island: all the outer ones are above water. The southern or BOAT ISLAND has a cove at its north-east corner, in which boats may land; there is

Landing-place.

water on the point close to the eastward of this landing-place.

Their place on the chart may be depended upon, because they were seen from, and connected by triangulation to, Henderson

Soundings.

and Hermite Islands (Kater's Peak). There are soundings on each side, but too deep for anchorage, excepting to the south-east, where Mr. Weddell lays down some soundings (in his chart), which were not found.

Clear Sea.

Between the Diego Ramirez and the Hermite Islands there is no danger of any kind.

FALSE CAPE HORN is a very remarkable headland (*No.* 33). From the east or west it looks like a large horn. It is a lead-

Orange Bay.

ing mark to the best anchorage on this coast—"ORANGE BAY."

To anchor in this bay you must pass to the eastward of the False Cape, as close as you please. Steering N. E. (*true*) for four miles will bring you abreast of Point Lort; a bay two miles wide is then opened, in which you may anchor, if necessary, in 8 or 10 fathoms, over a fine sandy bottom. Some rocks, above water, lie at the north side. Beyond the point which forms the north side of this bay, is a small cove, with 18 fathoms water in the middle; beyond it is another cove, rather larger, after which you open SCHAPENHAM BAY (so called by the Nassau fleet). A north course (*true*) from Point Lort will take you abreast of Orange Bay.

Schapenham Bay.

SCHAPENHAM BAY is one mile and a half wide; there is a small black rock, above water, rather to the northward of its middle. A great deal of kelp, lying over a rocky bottom, is seen at the head of the bay, and a large waterfall marks the place distinctly.

Between Schapenham and Orange Bays.

There is anchorage in from 10 to 15 fathoms, near the south point; but I should not recommend a vessel to use it, when by going further she may get into an unexceptionable harbour, or anchor off its entrance in perfect security.

The land behind these coves that have been mentioned is high and rugged; two singular peaks shew themselves, which resemble

sentry-boxes. Near the shore the land is low, compared with other parts of the coast, and has not the iron-bound forbidding appearance of the more westerly shores. Near Schapenham Bay.

From the heights sudden and very strong squalls blow during westerly winds. Being generally a weather shore, and regular soundings extending along it, there is no difficulty in choosing or approaching an anchorage. Squalls.

Off ORANGE BAY anchor soundings extend to two miles from the land. The opening of the bay is three miles wide, and in that part are eighteen or twenty fathoms, over fine speckled sand. Two islands, the larger having a smooth down-like appearance, lie in the middle; behind them is the harbour, a square mile of excellent anchorage, without a single rock or shoal. In the two creeks at the south side is good anchorage for small vessels: the depth of the water varies gradually from 5 to 20 fathoms. The bottom every where is a fine speckled sand. The land hereabouts is low, comparatively speaking, and you are not annoyed by the violent squalls which come from the heights in other places. Orange Bay. Anchorage. Depth. No squalls.

You may go close to the shore in every part, therfeore no directions are necessary to point out the way to the best berth which is marked in the plan. Wood and water are plentiful; the best watering place is in a small cove at the north side, called WATER COVE. This harbour is fit for a fleet of line-of-battle ships, and could supply them with any quantity of wood and water. Shore steep. Wood and water.

Off the north point are several small islets, which must not be approached too closely; they are, however, out of the way.

Six miles N. N. W. of the outer anchorage is a curious island, like a castle, or a PACKSADDLE. Packsaddle Island.

Orange Bay is somewhat open to east winds, but they seldom blow strong, and would be fair for ships bound westward. No sea can be thrown in, because of the Hermite Islands.

There is no current here worthy of notice. The tide rises six feet: high-water at half-past three. Current. Tide.

Opposite to the land lying between New Year's and Tekeinika Sounds, called Hardy Peninsula, on the east side of which is Orange Bay, are the HERMITE ISLANDS (*No.* 34, 35, *and* 36.)

Hermite Islands. Their northern shores have not yet been examined. The southern are accurately laid down in the chart.

Beagle Channel. NASSAU BAY extends to the north and north-west into the BEAGLE CHANNEL. There is nothing to lead a vessel into these openings, therefore a description of them is not necessary. They may prove useful for boats, and a glance at the chart will be of more service, for their purpose, than any directions.

Nassau Bay. NASSAU BAY is very accessible, and free from dangers. Anchorage may be found on each coast, and the only dangers are some rocks (or islets), above water, shewn in the chart, and visible at a distance by daylight. The northern shore is low, particularly towards GUANACO POINT, where the coast first begins to shew signs of approaching EASTERN PATAGONIA, changing its rocky heights for level land, and low, earthy cliffs.

Cape Horn. On the southernmost of the Hermite Islands is CAPE HORN. There is nothing very striking in the appearance of this promontory, as seen from a distance; but, in passing near, it is more remarkable, shewing high black cliffs towards the south: it is about five hundred feet above the sea. (*The Sketches, Nos. 34, 35, and 36, are faithfully drawn.*)

No dangers exist to the southward, in approaching these islands—they may be closed without hesitation.

West Cape. WEST CAPE is low. The land about ST. MARTIN'S COVE is high and rugged. WOLLASTON and HERSCHEL ISLANDS have

Mountains. also ridges of mountains. KATER'S PEAK, the highest land (excepting MOUNT HYDE) on the islands, is seventeen hundred feet above the sea.*

Current near False Cape. In the channel between False Cape Horn and the Hermite Islands, a current is found setting into Nassau Bay, and rather towards the Hermite Islands, at the rate of two knots an hour with the flood tide, and about half a knot with the ebb. As this current sets rather towards West Cape, a good berth must be given to it in passing.

Franklin Sound. FRANKLIN SOUND is clear of obstruction, and has no other dangers than those which are shewn in the chart.

* By barometrical measurement, 1742 feet above high-water mark.—*P. P. K.*

In Nassau Bay the compasses are much affected; they become very sluggish, and might cause a serious error if not carefully attended to.* Compasses affected in Nassau Bay.

A strong current sets, at times, along the outer coast of the Hermite Islands, and through the Bay of St. Francis. It varies from half a knot to two knots an hour, according to the wind and the time of tide; and, in the bay, changes its direction with the change of tide. Bay of St. Francis. Current and Tide.

With the sketch or chart, no one would require a direction to point out ST. MARTIN'S COVE. Temporary anchorage may be had in the small bay leading to ST. JOACHIM'S COVE, or under the south head of St. Martin's Cove, where you find from 20 to 25 fathoms, over a clear, sandy bottom. As you approach the western end of St. Martin's Cove the water shoals to 15 and 10 fathoms. It is perfectly secure, but visited by very violent squalls during a westerly wind. St. Joachim's Cove. Anchorage in St. Martin's Cove.

PORT MAXWELL is a perfectly secure anchorage, and untroubled by mountain squalls (or willywaws), but it is rather out of the way. Though it has four openings, only two are fit for vessels,—those to the north and east. The best berth in it has sixteen fathoms water, over a clear, sandy bottom. This harbour is decidedly good, though it requires a little more time and trouble in the approach. Port Maxwell.

The passages between these islands have deep water, and are free from dangers: what few rocks there are, shew themselves Deepwater Passages.

* The magnetic needle was very remarkably affected in many parts of the islands of the group, although I did not observe any great difference, when at a distance from the rock of which they are formed, or on board the ship. On one occasion, on ascending the summit of Maxwell Island, in Port Maxwell, the compass was placed for convenience upon the rock, when the needle was found to be so much influenced by the ferruginous nature of the rock, composed of Quartz with large and numerous crystals of Hornblende, that its poles became exactly reversed. An experiment was afterwards made by taking a set of bearings of a distant object, (to prevent an error of parallax,) at several stations around, at fifty yards from the above magnetic rock; when the extreme difference amounted to 127°. The block upon which the compass was placed in the first instance is now in the museum of the Geological Society.

No sensible difference, however, was found in the valley, at the bottom of St. Martin's Cove, where the variation of the compass was observed by several different instruments, and compared with astronomical bearings, when the deviation did not amount to more than the usual amount of the variation in that neighbourhood.—*P. P. K.*

above water, or are thickly covered with kelp. Some rocks lie off the south end of Chantieleer Island, too close to be of much consideration.

Rock off Cape Horn.

One mile to the westward of CAPE HORN there are three rocks, generally above water; the sea always breaks on them.

Cape Deceit.

Off the east point of HORN ISLAND, are some small rocks and breakers. Off CAPE DECEIT are several rocks, all above water; and two miles to the south-east, is a cluster, rising thirty or forty feet above the sea.

Current near Cape Horn.

Off CAPE HORN the current is as strong as on any part of the coast. Between it and Cape Pillar, it is by no means regular; sometimes with a strong wind and flowing tide it runs two knots an hour, at others it is hardly worth notice.* I never found it set to the westward at any time of tide, or with any wind.

Barnevelt Isles.

The BARNEVELT ISLANDS (*No.* 38) lie eleven miles N. E. by E. from Cape Deceit. The chart and sketch are a sufficient description.

Evouts Isles.

For the EVOUTS ISLES (*No.* 38), I should refer also to the chart and the accompanying view; and for the appearance of this part of the coast, from Cape Horn to Cape Good Success, to the sketch (*No.* 37).

The space between Cape Deceit and New Island, is free from hidden dangers, as far as I am aware, but it has not yet been sufficiently examined.

Goeree Road.

In GOEREE ROAD, there is very good anchorage in six or seven fathoms water, over a sandy bottom.

Lennox Island.

LENNOX ISLAND, as well as NEW ISLAND, and indeed any part of the coast hereabouts, may be approached with confidence, using the lead and looking out for kelp.

No shoals, but regular soundings.

There are no shoals, but the water is not so deep as to the west of Cape Horn, neither is the land near so high.

At the east side of Lennox Island is excellent anchorage; small vessels may go into a cove, in which the Beagle lay moored, but large ships must anchor in the road, which is quite secure and sheltered from all but south-east winds, with which of course

* In beating up to the anchorage in St. Martin's Cove, at from 20 to 60 miles to the eastward of Cape Horn, I found the current setting constantly at from half to one mile per hour, the wind throughout being south-westerly.—*P. P. K.*

a vessel would not wish to remain at anchor. To the north of Lennox Island is the eastern opening of the BEAGLE CHANNEL. It is easy of access, but useless to a ship. Boats may profit by its straight course and smooth water. It runs one hundred and twenty miles, in nearly a direct line between ranges of high mountains, covered always with snow. The highest are between three and four thousand feet above the sea. This channel averages one mile and a half in width, and in general has deep water; but there are in it many islets, and rocks near them.

Beagle Channel.

Ranges of Mountains.

A range of high mountains runs uninterruptedly from the Barbara Channel to Strait Le Maire. Mount Sarmiento, more than five thousand feet* above the sea, is in this range. Southward of these mountains is a succession of broken land, intersected by passages or large sounds. A boat can go from the Week Islands to the eastern entrance of the Beagle Channel, without being once exposed to the outside coast, or to the sea which is there found.

High Mountains. Mount Sarmiento.

Broken land.

Boat passages.

Some heights on New Island were noticed by Cook; they were not, however, so visible from the west as from the east side.

Heights on New Island.

Good temporary anchorage during westerly winds may be obtained under NEW ISLAND, or near the shore to the northward; but I know of no good harbour, between Richmond Road and Good Success Bay, in Strait Le Maire.

Anchorage under New Island.

Regular soundings are found hereabouts, in all directions, and the shore is steep to.

Neither AQUIRRE BAY, SPANIARD'S HARBOUR, nor VALENTYN'S BAY, are fit for more than temporary anchorage, during northerly or westerly winds. They are much exposed to the south. For that purpose the chart is a sufficient guide.

Aquirre Bay, Spaniard's Harbour, and Valentyn's Bay.

The tide is felt strongly on this part of the coast, causing races and eddies near the projecting points. In the offing, the current (or tide) sets towards Strait Le Maire, from one to three knots an hour, when the water is rising on the shore, and the wind westerly. While the water is falling it runs with less strength, and with an easterly wind is not felt at all.

Tides.

* 6,800 feet, see page 35.

Bell Mountain. The BELL MOUNTAIN is remarkable: it is seen far at sea, from the north as well as from the south; it is high, and in shape resembles a large bell.

Cape Good Success. CAPE GOOD SUCCESS is high and bluff (*No.* 40); some rocks lie close to it, above water.

The land from the Bell Mountain to Good Success Bay is higher than that near Lennox and New Islands; it more resembles the south-west coast.

Between Cape Horn and Staten Island, regular soundings are found, between thirty and seventy fathoms, over a sandy bottom.

Strait Le Maire. The soundings in STRAIT LE MAIRE are similar near their southern entrance. Towards the north the soundings diminish; and two miles from Cape San Diego, there are not more than 30 fathoms water over a rocky bottom. The strait is clear of all obstacles, the tide excepted. The land, from Cape Good Success to Maurice Cove, is high and bold, with water for a ship as near to it as she ought to go.

Rather more than two miles north-east of Cape Good Success is a projecting headland, which, at first, appears to be the cape; two rocky islets shew themselves close to it, and from a distance appear like a ship under sail.

Good Success Bay. Six miles from these rocks, N. E. by N., is the BAY OF GOOD SUCCESS (*No.* 40). It is a good anchorage, perfectly safe, provided that a vessel does not anchor too far in towards the sandy beach at its head; for, during south-east gales, a heavy swell with dangerous rollers sets right into the bay. The best berth is shewn in the plan. Heights, of about twelve hundred feet above the sea, surround the bay; therefore with strong winds, it is subject to squalls, which, during westerly gales, are very violent.

Squalls.

Good Success Bay is an excellent anchorage for vessels of any size to stop in to get wood or water, but it would not answer if a vessel required to lie steady for repairs, as a swell frequently sets in. It is quite safe; but in the winter season, when easterly winds are common, no vessel should anchor so near the head of the bay as she might in summer.

Cook's Broad Road. The "Broad Road," mentioned by Cook, is a good mark for the bay, if the inbend of the land does not sufficiently point out its situation. It is a barren strip of land on the

height at the south side of the harbour. MAURICE COVE has no good anchorage, it is merely a rocky bight. Maurice Cove.

Hence to Cape San Diego, the land is much lower, and the water near it less deep.

CAPE SAN DIEGO is low; a ship may go close to it. There are shoaler soundings towards the east, for about two miles, than in other parts near here; for a rocky ledge under water seems to project from the cape. On this ledge there are overfalls, strong eddies, and a violent race of tide when the wind is opposed to it. Cape San Diego. Ledge off Cape San Diego.

Beyond Cape San Diego the land suddenly trends away westward.

CAPE ST. VINCENT is a rocky point, with low bluffs above it. Cape St. Vincent.

Between this point and Cape San Diego, is "THETIS BAY," a tolerable anchorage during west or southerly winds, though the bottom is rocky in many places. Between the heads the tides run with great strength, therefore a ship should anchor off a green bluff at the west side, and within the line of the heads she will have from six to twelve fathoms of water, over a coarse sandy bottom, mixed with patches of rock. Thetis Bay.

Beyond Cape St. Vincent the land trends to the west and north-west; it is rather low near the sea, but in shore are many hills partially covered with wood. Land beyond Cape St. Vincent.

Regular soundings extend to seaward for many leagues; and good anchorage may be found near the land, on any part of this coast, during westerly winds. Soundings. Coast easy of access.

The tides, in STRAIT LE MAIRE, are as regular as in any part of the world. They will assist a vessel materially in her passage, if taken at the right time. Tides in Strait Le Maire.

As the strait is very wide, perfectly free from obstacles of any kind, the soundings regular, with Good Success Bay close at hand, in case the wind or tide should change, vessels may pass through without difficulty or risk.

When the tide opposes the wind and swell, there is a heavy, and, for small vessels, dangerous, race of tide off Cape San Diego; where, as I said before, there is a shoal ledge, and the tide runs very strongly. We found it so in the Beagle at even a *neap* flood tide; but let it be remarked that, on another day, at Tide rip off San Diego.

the *top* of the *springs*, being the day after full moon, we passed the same spot at half flood, with perfectly smooth water.

Though the tide was running three or four knots an hour round the cape, and eddies were seen in every direction, the vessel's steerage was but little affected by them.

Tides in Strait Le Maire.

It is high-water on the shore in GOOD SUCCESS BAY, and slack water in the strait, at four in the afternoon on the full and change days, and low water with slack tide in the offing at ten in the morning. The tide rises perpendicularly from six to eight feet, according to the wind.

At Cape Pillar.

At Cape Pillar, (as I before said,) the turn of tide is about one o'clock (p. 96). Along the south-west and south-east coasts, the time gradually increases to four in the afternoon at this place.

From Cape San Diego to the northward, the tide sets north and west along the shore, from one knot to three. The ebb sets in a contrary direction, but not so strongly.

Strait Le Maire.

In Strait Le Maire the flood tide runs from two to four knots near the cape, and from one to three in mid-channel, more or less according to the strength and direction of the wind. The ebb sets to the southward, about one knot an hour.*

At times, when a strong flood tide is opposed by a northerly wind, there is an overfall off Cape San Diego, like the "Bores" on our own coast and elsewhere.

Staten Island.

STATEN ISLAND is high, and its mountains are generally covered with snow. Its shores lying towards the strait are very bold and rugged. No danger is near them, excepting strong eddies and races, caused by the tide near the headlands.

CAPE ST. ANTONY, MIDDLE CAPE, and CAPE SAN BARTHOLOMEW, are high, bluff promontories. The soundings to the northward are very regular, and give notice of your approach to Staten Island, or the Strait Le Maire.

* The flood tide sets through Strait Le Maire from the southward, and along the north and south sides of Staten Island from east to west. It is high-water, at full and change, at the anchorage within the New Year's Isles, as well as on the east side of Strait Le Maire, at 5 o'clock. The current is very strong, running from 4 to 6 knots. Off Cape St. John there is a tide race, which extends for some distance off the point.—*P. P. K.*

General Observations upon the appearance and character of the Sea Coast of Tierra del Fuego; Description of the Anchorages; and Remarks upon the Seasons, Wind, and Weather.

From Cape Pillar to Cape Horn the coast of Tierra del Fuego is very irregular and much broken; being, in fact, composed of an immense number of islands. It is generally high, bold, and free from shoals or banks; but there are many rocks nearly level with the surface of the water, distant two and even three miles from the nearest shore, which make it very unsafe for a vessel to approach nearer than five miles, excepting in daylight and clear weather. The coast varies in height from eight to fifteen hundred feet above the sea. Further inshore are ranges of mountains always covered with snow, whose height is from two to four thousand feet, and in one instance (Sarmiento) five thousand.

Cape Pillar to Cape Horn.

Nature of the coast.

Height above the Sea.

With daylight and clear weather a vessel may close the shore without risk, because the water is invariably deep, and no rock is found which is not so marked by sea-weed (or kelp, as is generally called), that by a good look out at the mast-head, its situation is as clearly seen as if it were buoyed. By avoiding kelp you are sure of having sufficient water for the largest ships on any part of this coast. At the same time it must be remembered that kelp grows in some places from a depth of 30 fathoms, and that on many parts of this coast you may pass through thick beds of sea-weed without having less than 6 fathoms water; still it is always a sign of danger, and until the spot where it grows has been carefully sounded, it is not safe to pass over it with a ship. As an instance:—after sounding a large bed of this weed in one of the Beagle's boats, and thinking it might be passed safely, a rock was found, not more than four feet in diameter, having only one fathom water over it.

Rocks buoyed by kelp.

Kelp or sea-weed, a sign of danger.

Viewing the coast at a distance, it appears high, rugged, covered with snow, and continued,—as if there were no islands.

Appearance of the Coast.

When near you see many inlets which intersect the land in every direction, and open into large gulfs or sounds behind the seaward islands.

Appearance of the Land.

You now lose sight of the higher land, which is covered with snow throughout the year, and find the heights close to the sea thickly wooded towards the east, though barren on their western sides, owing to the prevailing winds. These heights are seldom covered with snow, because the sea winds and the rain melt it soon after it falls.

Signs of anchorage.

Opposite to the eastern valleys, where the land is covered with wood, and water is seen falling down the ravines, good anchorage is generally found. But these valleys are exposed to tremendous squalls which come from the heights. The best of all anchorages on this coast, is where you find good ground on the *western* side of high land, and are protected from the sea by low islands. It never blows near so hard *against* high land as from it, but the sea on the weather side is of course too formidable, unless stopped, as I mentioned, by islets.

Squalls.

Best anchorages.

Anchorages where found.

Where the land is chiefly composed of sandstone or slate, anchorages abound; where of granite, it is difficult to strike soundings.

Difference between granite and sandstone, or slate hills.

The difference between the granite and slate or sandstone hills, can be distinguished by the former being very barren and rugged, and of a grey or white appearance; whereas the latter are generally covered with vegetation, are dark coloured, and have smoother outlines. These slate or sandstone hills shew few peaks, and the only rugged places are those exposed to wind or sea.

Soundings.

Soundings extend to thirty miles from the coast. Between ten and twenty miles from the land the depth of water varies from 60 to 200 fathoms, the bottom almost everywhere a fine white or speckled sand. From ten to five miles distant the average depth is 50 fathoms; it varies from 30 to 100, and in some places no ground with 200 fathoms of line. Less than five miles from the shore the soundings are very irregular indeed, generally less than 40 fathoms, but in some places deepening suddenly to 100 or more: in others a rock rises nearly to, or above, the surface of the water.

After carrying 50, 40, 30, or 20 fathoms, towards an inlet,

which you are desirous of entering, you will probably find the water deepen to 60 or 100 fathoms as soon as you enter the opening; and in the large sounds, behind the seaward islands, the water is considerably deeper than on the outside. Soundings.

There is a bank of soundings along the whole coast, extending from twenty to thirty miles from it, which appears to have been formed by the continued action of the sea upon the shore, wearing it away and forming a bank with its sand.

Between the islands where there is no swell or surf worth notice, the water is deep, and the bottom very irregular.

A small ship may run among the islands in many places, and find good anchorage; but she runs into a labyrinth, from which her escape may be difficult, and, in thick weather, extremely dangerous.

Fogs are extremely rare on this coast, but thick rainy weather and strong winds prevail. The sun shews himself but little; the sky even in fine weather being generally overcast and cloudy. A clear day is a very rare occurrence. Fogs.

Gales of wind succeed each other at short intervals, and last several days. At times the weather is fine and settled for a fortnight, but those times are few. Weather.

Westerly winds prevail during the greater part of the year. The east wind blows chiefly in the winter months, and at times very hard, but it seldom blows in summer. Winds.

Winds from the eastern quarter invariably rise light, with fine weather;—they increase gradually,—the weather changes,—and at times end in a determined heavy gale. More frequently they rise to the strength of a treble-reefed topsail breeze, then die away gradually, or shift to another quarter. Easterly winds.

From the north the wind always begins to blow moderately, but with thicker weather and more clouds than from the eastward, and it is generally accompanied by small rain. Increasing in strength, it draws to the westward gradually, and blows hardest between north and north-west, with heavy clouds, thick weather, and much rain. North and north-west winds.

When the fury of the north-wester is expended, which varies from twelve to fifty hours, or even while it is blowing hard, the wind sometimes shifts suddenly into the south-west

South-west wind.

quarter, blowing harder than before. This wind soon drives away the clouds, and in a few hours you have clear weather, but with heavy squalls passing occasionally.

Changes from north to south.

In the south-west quarter the wind hangs several days (generally speaking), blowing strong, but moderating towards its end, and granting two or three days of fine weather.

Nature of the Summer.

Northerly winds then begin again, generally, during the summer months; but all manner of shifts and changes are experienced from north to south by the west during that season, which would hardly deserve the name of summer, were not the days so much longer, and the weather a little warmer. Rain and wind prevail much more during the long, than the short days.

It should be remembered that bad weather *never* comes on *suddenly* from the eastward, neither does a south-west or southerly gale shift suddenly to the northward. South-west and southerly winds rise suddenly and violently, and must be well considered in choosing anchorages, and preparing for shifts of wind at sea.

Common weather.

The most usual weather in these latitudes, is a fresh wind between north-west and south-west, with a cloudy overcast sky.

Barometer and Sympiesometer

Much difference of opinion has prevailed as to the utility of a barometer in these latitudes. I can only say, that during twelve months' constant trial of a barometer and sympiesometer (Adie's), I found their indications of the utmost value. Their variations do not of course correspond to those of middle latitudes, but they correspond to those of high northern latitudes in a remarkable manner, changing south for north (east and west remaining the same).

Current.

There is a continual current setting along the south-west coast of Tierra del Fuego, from the north-west towards the south-east, as far as the Diego Ramirez Islands. From their vicinity the current takes a more easterly direction, setting round Cape Horn towards Staten Island, and off to seaward to the E. S. E.

Much has been said of the strength of this current, some persons supposing that it is a serious obstacle in passing to the westward of Cape Horn, while others almost deny its existence.

I found it run at the average rate of a mile an hour. Its strength is greater during west;—less, or insensible, during east-

erly winds. It is strongest near the land, particularly near the projecting capes or detached islands.

This current sets rather *from* the land, which diminishes the danger of approaching this part of the coast.

Coast not dangerous.

There is, in fact, much less risk in approaching this coast than is generally supposed. Being high and bold, without sand-banks or shoals, its position accurately determined, and a bank of soundings extending twenty or thirty miles from the shore, it cannot be much feared. Rocks, it is true, abound near the land, but they are very near to the shore, and out of a ship's way.

A line from headland to headland (beginning from the outermost Apostle), along the coast will clear all danger excepting the Tower Rocks, which are high above water, and steep to.

Southerly gales.

Gales of wind from the southward, and squalls from the south-west, are preceded and foretold by heavy banks of large white clouds rising in those quarters, having hard edges, and appearing very rounded and solid. (Cumuloni.)

North and north-west winds.

Winds from the northward and north-westward are preceded and accompanied by low flying clouds, with a thickly overcast sky, in which the clouds appear to be at a great height. The sun shews dimly through them, and has a reddish appearance. For some hours, or a day, before a gale from the north or west, it is not possible to take an altitude of the sun although he is visible; the haziness of the atmosphere in the upper regions causing his limbs to be quite indistinct. Sometimes, but very rarely, with the wind light between N. N. W. and N. N. E., you have a few days of beautiful weather. They are succeeded by gales from the southward, with much rain.

Northerly wind and fair weather; succeeded by southerly gales.

Seasons.

It may be as well to say a few words respecting the seasons in the neighbourhood of Cape Horn, as much question has arisen respecting the propriety of making the passage round the cape in winter or in summer.

Equinoxes.

The equinoctial months are the worst in the year, generally speaking, as in most parts of the world. Heavy gales prevail at those times, though not, perhaps, exactly at the equinoxes.

Spring the worst season.

In August, September, October, and November, you have the worst months in the year. Westerly winds, rain, snow, hail, and cold weather, then prevail.

Summer gales. December, January, and February, are the warmest months; the days are long, and you have some fine weather; but westerly winds, very strong gales at times, with much rain, prevail throughout this season, which carries with it less of summer than in almost any part of the globe.

March, as I said, is stormy, and perhaps the worst month in the year with respect to violent winds, though not so rainy as the summer months.

Autumn. In April, May, and June, the finest weather is experienced; and though the days shorten, it is more like summer than any other time of the year. Bad weather is found during these months, but not so much as at other times. Easterly winds are frequent, with fine clear settled weather. During this period there is some chance of obtaining a few successive and corresponding observations. To try to rate chronometers by

Winter. equal altitudes would be a fruitless waste of time at other seasons. June and July are much alike, but easterly *gales* blow

June and July. more during July.

The days being so short, and the weather cold, make these months very unpleasant, though they are, perhaps, the best for a ship making a passage to the westward, as the wind is much in the eastern quarter.

Best time for making the passage round Cape Horn. I should say that the summer months, December and January, are the best for making a passage from the Pacific to the Atlantic Ocean, though that passage is so short and easy, that it hardly requires a choice of time. For going to the westward, I should prefer April, May, and June.

Lightning and thunder. Lightning and thunder are seldom known; violent squalls come from the south and south-west, giving warning of their

Squalls. approach by masses of clouds. They are rendered more formidable by snow and hail of a large size.

SECTION VIII.

SOUTH-WEST COAST, or WESTERN PATAGONIA, from the Strait of Magalhaens to Cape Tres Montes.

Very small portions of the sea-coast of this interval were seen by us. The following descriptions are principally abstracted from the manuscript Journals of the late Captain Stokes, Lieutenant (now Captain) Skyring, and Mr. Kirke, Mate, of His Majesty's Surveying Sloop, Beagle.

Between Cape Victory and Lord Nelson Strait, the coast is very much broken, and intersected by channels leading between the islands of Queen Adelaide Archipelago; on the sea-coast of which, to the N. N. E. of Cape Victory, is a remarkable pyramidal hill called Diana Peak, which, in clear weather, is visible to ships entering the strait. (See page 85.) Cape Isabel is a steep, rocky promontory of great height, with a peaked summit, and a sharply serrated ridge, having two detached columnar masses of rock. Beagle Island, lying off it, is wall-sided; but, although tolerably high, is much lower than the land of the cape.

Queen Adelaide Archipelago.

Diana Peak.

Beagle Island.

Cape Santa Lucia, the westernmost point of Cambridge Island, is high and precipitous. Cape George, at the south end, is lower, and forms a bluff point.

Cape Santa Lucia.

The San Blas Channel, Duck and Duncan Harbours, the Duncan Rock, and other rocks off them, are inserted from the oral information of the master of an American schooner, and, probably, are very incorrectly laid down. Augusta Island and the White Horse were seen by Lieutenant Skyring.

San Blas Channel.

Augusta Island.

Cape Santiago, the south end of Madre de Dios Archi-

Cape Santiago.

pelago, is correctly placed, as are also the general direction of the coast to the northward, and the summits of the land that are particularized viz.—the opening of WEST CHANNEL, APRIL PEAK, TOWER ROCK, and the bay to the north of it, and CAPE THREE POINTS, which is the south entrance of the GULF OF TRINIDAD.* Opposite to the latter cape is CAPE PRIMERO,† the south point of the mountainous island of Mount Corso;‡ the land of which may be seen, in clear weather, from the southward, at the distance of ten leagues. It forms the visible northern termination of the coast line. Viewed when bearing north, or any point to the westward of north, its summit makes like a round mount rising conspicuously above the contiguous land, from which a small portion of low coast extends for two degrees beyond it to the westward. The land of the northern shore of the gulf makes in mountainous ridges and peaks, the average height of which Captain Stokes estimated to be about three thousand feet.

Gulf of Trinidad.

Cape Three Points.

CAPE THREE POINTS‖ rises to a lofty rocky mountain, nearly two thousand feet high, the summit being of peaks and sharp serrated ridges, with a detached mass of rock of pyramidal form at the base, which shuts in with the land on the bearing of N. 51° E.

Variation.

The variation here is 20° 58′.

Port Henry.

PORT HENRY is three miles to the N. E. of Cape Three Points. The shore between them is lined for nearly a league off with rocks and islets, of which several scores might be counted in the space of a square mile; but they seem to be of bold approach, and no dangers probably exist that are not above water, or are not shewn by kelp.

Directions.

Bound to PORT HENRY, a vessel should keep on the south side of the gulf; for the northern part is strewed with many rocks, and seemed to be exceedingly dangerous. The soundings, also, are very irregular, and the bottom is foul and rocky.

The entrance of PORT HENRY will be easily distinguished by

* Sarmiento, p. 66.

† Ibid, p. 65. It is also the Cape of Good Hope of Bulkely and Cummings' Narrative, p. 116.

‡ Sarmiento, p. 65.

‖ Ibid,

its sandy beach, since it is the first that is observed on the south shore on entering the gulf. It is a small, light-coloured beach, with a lowish sandy cliff at the back, and a round, rocky, and wooded mount at its western end. The SEAL ROCKS, also in the offing, are a good mark; they bear N. 12° E., five miles, from the west point of the entrance, which is about a mile wide. The channel is bounded on each side by low rocks, lying off highish, round, rocky islets, that may be approached within one and a half cable's length. The soundings are from 20 to 26 fathoms, on a sandy bottom; afterwards they decrease pretty gradually to the anchorage, which is in 9 and 10 fathoms. Directions for Port Henry

When the sandy beach bears S. 19° E. *mag.*, the fair way of the entrance will be quite open; and a vessel may stand in, keeping the round mount at the western end of the sandy beach on the larboard bow, until nearly abreast of it; she may then proceed up the harbour as high as convenient, and select her berth: for the ground is quite clear of danger to the line of rock weed, which skirts the shores and islets. The depth of water is between 12 and 8 fathoms, and the bottom generally of sand and mud.

In turning in there are some patches of kelp on each side, growing upon rocks that watch at high-water, which must be avoided: their positions are given in the plan.

As the squalls off the high land are sometimes very strong, it will be advisable for a ship to anchor as soon as possible, and warp up to her berth; which, from the smoothness of the water, may be easily effected. Any security may be obtained in this harbour; the plan will shew that the basin at the bottom of the harbour is a complete wet dock. Wood and water at the sandy beach are in abundance. Caution against strong squalls.

It is high-water at full and change within a few minutes of noon, and rises five feet. The stream of the tide, however, is very inconsiderable, and never exceeded half a mile an hour. Tides.

The observations for latitude and longitude, &c. were made on a rock at the western side of the port, marked A in the plan. The lat. is 50° 00′ 18″, lon. 75° 15′ 11″. Variation of the compass, 20° 50′. Situation.

The GULF OF TRINIDAD separates WELLINGTON ISLAND from

Gulf of Trinidad.

MADRE DE DIOS. It is nearly ten leagues long, and from four to eight miles wide. Its south shore, or north coast of Madre de Dios, is very much broken, and, probably, contains many ports. None of them were visited excepting for night anchorages. Under the east side of Division Island is PORT DE LA MORRO, which, with POINT CANDELARIA and PORT ROSARIO, are inserted from Sarmiento's account.*

On the northern shore are two opening-like channels: the westernmost probably communicates with the FALLOS Channel; the other, Sarmiento's BRAZO DE NORTE, or NORTH ARM, appeared to trend under the base of the range of mountains, among which CATHEDRAL MOUNT is a conspicuous object. From the entrance of the strait this mountain resembles the spire and roof of a church, and is visible for more than twenty leagues. Between the two openings is NEESHAM BAY, in which the Adelaide found a secure anchorage in 11 fathoms. There is also good anchorage for a small vessel in WINDWARD BAY.

The gulf meets the WIDE CHANNEL at its junction with CONCEPCION STRAIT, where the channel is contracted by an island to the width of one mile and a half. There are several isles and rocks in the gulf, of which the most remarkable are the SEAL ROCKS, before mentioned; the VAN ISLES, opposite the Western Channel; and a group of numerous islands extending for a league to the southward of the land to the westward of NEESHAM BAY. On the south shore are also several isles, but they are near the coast, and are particularized in the chart. The most remarkable is MIDDLE ISLAND, which, with the reef off its S. W. end, is well described by Sarmiento.†

Mount Corso.

Dangers near Cape Primero.

The Island of MOUNT CORSO is separated from Cape Brenton by SPARTAN PASSAGE. For more than a league off CAPE PRIMERO are some extensive reefs: indeed the whole line of the west coast of MADRE DE DIOS is fronted by rocks, some of which are two leagues from the shore. There are regular soundings in the entrance of the gulf, but the water deepens immediately after passing to the eastward of PORT HENRY.

PICTON OPENING and DYNELY BAY very probably insulate

* Sarmiento, p. 62 and 63. † Ibid, p. 86.

the land that separates them, of which CAPE MONTAGUE is the south-west extreme. There are some rocks eight or ten miles off the coast to the southward; but between Cape Montague and Cape Dyer they are more numerous: several are from eight to ten miles off the shore; many are dry, some are awash, and others shew only by the breaking of the sea. The coast to the north of DYNELY BAY is very broken. Picton Opening and Dynely Bay.

CAPE DYER is in lat. 48° 05′ 55″, lon. 75° 34′ 35″. At five miles S. 86° W. from it is a rocky islet, called by Bulkely and Cummings "THE ROCK OF DUNDEE," from its similarity "to that island in the West Indies, but not so large; it lieth about 4 leagues* from the southernmost point of land out at sea."† Cape Dyer. Dundee Rock

This rock is a good mark for PORT SANTA BARBARA, from the entrance of which it bears S. 64° W. (S. W. *mag.*), distant nine miles.

At one mile to the north of the rock the depth is 23 fathoms, and gradually decreases on approaching PORT SANTA BARBARA; in steering for which, as soon as CAPE DYER bears South, by compass, you will be close to some rocks, which you should keep on your larboard hand. Abreast of this rock, one-eighth of a mile off, the depth will be 11 fathoms. The channel here is one mile wide, but gradually narrows on approaching the south-west end of BREAKSEA ISLAND; and at WRECK POINT, the west head of the port, the width is about one-eighth of a mile. There are several rocks in this passage, but as the depth is from 6 to 8 fathoms, the anchor may be dropped, and the ship warped clear of them, in case of being becalmed: calms, however, are of rare occurrence here. Port Santa Barbara. Directions

BREAKSEA ISLAND, more than two miles long, fronts the port, the heads of which are three quarters of a mile apart. In the entrance of the port the depth is 3½ and 4 fathoms, and gradually decreases to 2½ fathoms, but at the bottom there is a basin with 6 and 8 fathoms in it. This is a very good harbour, and from the rare opportunity of anchoring your ship in a moderate depth, is of easy access. It is also readily made out by its vicinity to the DUNDEE ROCK, which serves to point out its position. Breaksea Island.

* There must be a mistake here, it should probably have been four miles.

† Bulkely and Cummings' Voyage to the South Seas, p. 113.

Port Santa Barbara.

The west head of the port is in lat. 48° 02′ 15″, and lon. 75° 29′ 45″; variation 19° 10′. High-water takes place at full and change, at 0h 28′, and rises three to four feet (*neaps*).

To the N. E. of Break sea Island are many straggling rocks. The Beagle having entered the port by the western entrance, left it by threading the rocks to the eastward, in doing which she had not less than 9 fathoms.

Between the island and the mouth of the port, the depth is from 6 to 7 fathoms, good ground, which renders the entrance and exit very easy.

Flinn Sound.

Flinn Sound is a deep opening to the eastward of the port; that was not examined.

Point Bynoe.

Point Bynoe, with the group of islands—Bynoe Islands, extending for two miles off it, is the west head of the Fallos Channel, which was explored for thirty miles without offering any interesting feature. Mr. Kirke, who examined it, describes it to be perfectly clear of rocks, and abounding in anchorages for small vessels, although the water is deep. The bottom is sandy. Its general width is one and a half to two miles. The western side of the mouth is a ridge of mountains; the eastern side is much lower, and very broken, and formed by many small islands. At five miles within it, on the west side, is Our Lady's Bay, of the old charts. Fallos Channel probably communicates with the sea by Dynely Bay and Picton Opening; and, beyond the latter, was supposed to communicate with the Gulf of Trinidad by the channel to the west of Neesham Bay.

Guaianeco Islands.

The Guaianeco Islands, twenty miles in extent, are composed of two principal islands, and many smaller islets—the westernmost is called Byron Island, and the easternmost Wager Island. They are separated by Rundle Pass called in Bulkely's Narrative, The Lagoon;* on the west side, and at the north end of it is Speedwell Bay.†

Rundle Pass.

Rundle Pass is only a quarter of a mile wide, but perfectly clear in the whole extent of its channel, excepting the northern entrance; where it is guarded by many detached rocks, which

* Bulkely and Cummings' Narrative, p. 106.

† Ibid, p. 105.

render the entrance to Speedwell Bay rather difficult.* According to Byron's and Bulkely's Narratives, the situation of the wreck of the Wager is near the west end of the north side of Wager Island. HARVEY BAY and GOOD HARBOUR are mentioned by Bulkely. Off the western end of Byron Island are some rocky islets; and its north coast is also very much strewed with them, even to a considerable distance from the shore. Rundle Pass.

The GUAIANECO ISLANDS are separated from the land of Wellington Island by a clear, but, in some parts, narrow passage. At its S. W. end it is contracted by rocks to a mile and a half, and at the south end of Byron Island is scarcely a mile broad; afterwards, however, it widens to two and a half and three miles. Guaianeco Islands.

The north point of Wellington Island is CAPE SAN ROMAN.† It is the west head of the MESIER CHANNEL.

TARN BAY is about five leagues wide. The AYAUTAU ISLANDS are four miles from the coast, but the interval is occupied by several rocky reefs, between which, Lieutenant Skyring thought, there seemed to be a "sufficiently clear passage." The pilot, Machado, however thought differently.‡ The latter describes a small boat-haven on the larger island, but it is among rocks. Opposite to AYAUTAU is a port, called by the missionary voyagers, SAN POLICARPO ;§ which, from its exposure to the westward, I should not think very inviting. The Ports of TIANITAU and ASAURITUAN are also mentioned by the missionary priests, in their journals. The former is described to have many islands in its entrance,‖ and to be to the northward of SAN POLICARPO: and the latter to be to the south of TIANITAU, and opposite to AYAUTAU.¶ Tarn Bay. Ayautar. San Policarpo Tianitau and Asaurituan.

* Machado, the pilot who explored this coast in the year 1769, by order of the Governor of Chiloe, Don Carlos de Beranger, describes these islands at some length, but with a little confusion of bearings. The north end of Rundle Pass, he calls the west end, and the south outlet, the eastern. Byron's Island, he describes as being the southern island. I think his Port Ballenas must be on the south side of Wager Island, for he describes it to be opposite to Cape Roman (p. 213); therefore, Port Eustaquio should be on the north coast, probably, in the strait within San Pedro Island.—*Agueros*, p. 211 to 213.

† Agueros, p. 213. ‡ Ibid, p. 210. § Ibid, p. 238. ‖ Ibid. ¶ Ibid, p. 245.

Channels Mouth.

The CHANNELS MOUTH of the old chart is laid down, as well as all this part of the coast, from Machado's account,* who describes the opening, and gives its lat. 47° 25′, which is only three miles in error. We found it to extend in a S. E. direction for eleven miles, and then to divide into two arms, one trending fifteen miles to the eastward, and the other eleven miles to the south, where they terminate. They are merely deep and narrow arms of the sea, running between steep-sided ranges of mountains. The shores are rocky, and afford neither coves nor bights, nor even shelter for a boat, and are perfectly unproductive; for no seals or birds were seen, and the shores were destitute even of shell-fish.

Cape Machado.

CAPE MACHADO, in lat. 47° 27′ 35″, lon. 74° 26′ 10″, is the north head of this opening. Two miles off it are two rocks, which the pilot carefully and correctly describes, as he also does the rocks and breakers which extend off the south head for very nearly a league. The Beagle twice occupied an anchorage under the HAZARD ISLES, in the entrance, and on both occasions was detained many days from bad weather, with three anchors down.

Anchorages under the Hazard Isles.

Excepting this very bad and exposed anchorage, there exists none in the channel. Captain Stokes describes it to be an extremely perilous anchorage. "The anchors," he says, "were in 23 fathoms, on a bad bottom, sand and coral. The squalls were terrifically violent. Astern, at the distance of half a cable's length, were rocks, and low rocky islets, upon which a furious surf raged, and on which the ship must have been inevitably driven, if the anchors, of which three were down, had started."

Between CHANNELS MOUTH and JESUIT SOUND, the coast is more unbroken and low than usual. In lat. 47° 17′ are some reefs which project two miles to sea; behind them there was an appearance of a bight, which may afford anchorage.

Jesuit Sound.

JESUIT SOUND, like Channels Mouth, is quite unfit to be entered by any ship. It terminates in two inlets, BENITO and JULIAN. The former is bounded on either side by high moun-

* Agueros, p. 210.

tains, and terminates in low land, with a rivulet that originates in a large glacier. The latter ends in high mountainous land, with streams of water between the hills: one part of it is cliffy; and it has, on the S. W. side, a long sandy beach. In its entrance is a large island, making the passages on each side very narrow, and they are rendered still more so by rocks and islets. Jesuit Sound.

Separated by CHEAP CHANNEL from the main, is XAVIER ISLAND,* the MONTROSE ISLAND of Byron's Narrative.† It is eleven miles and a half long, and four wide, and is very high and thickly wooded with lofty trees. The only two anchorages which the island affords are noticed and named by Machado, the northern one, PORT XAVIER, the southern IGNACIO BAY.‡ The former is by much the better place, being secure from prevailing winds, with 17 fathoms at eight hundred yards from the shore. The south end of the bay is a sandy beach, backed by tall beech trees. The shore to the south of Xavier Bay, for the first four or five miles, consists of a high, steep, clay cliff, with a narrow stony beach at its base, backed by mountains of twelve or fourteen hundred feet high, and covered by large and straight-stemmed trees. The remainder of the coast, to IGNACIO Bay, is low, and slightly wooded with stunted trees; and its whole extent is lashed with a furious surf, that totally prevents boats from landing. Xavier Island. Port Xavier.

IGNACIO BAY affords anchorage in 9 fathoms. The western coast of the island is lined by reefs extending two miles off, upon which the sea breaks high. Ignacio Bay.

KELLY HARBOUR is situated at the bottom of the north-east corner of the Gulf of Peñas, in the bay formed between the land of ST. ESTEVAN GULF and XAVIER ISLAND. It trends inwards in an easterly direction for eight miles. The land about the harbour is high, rugged, and rocky, but by no means destitute of verdure. In the interior are lofty-peaked and craggy ranges of snow-covered mountains. The points of the entrances are two miles asunder, and are thickly wooded and low, compared with the adjacent land; their magnetic bearing is N. 48° E. and S. 48° W. Between them is a channel of from 35 to 40 Kelly Harbour.

* Agueros, p. 209—231. † Byron's Narrative, p. 73, 94, and 95. ‡ Agueros l. c.

Kelly Harbour

fathoms deep, over a mud bottom, without danger, to a cable's length of the rocky islets that fringe the shore for a quarter of a mile off. On approaching the harbour the remarkable muddied appearance of the water is rather startling; but the discolouration proceeds only from the freshes of the river, and the streams produced from a very extensive glacier that occupies many miles of the country to the north. The plan will shew the depth of water. The course in is E. S. E. by compass, until in a line between the inner north point, and an inlet on the south shore that is fronted by five or six wooded islets. Then haul up along the larboard side of the harbour, as close to the shore and as far as you please, to an anchorage. The best berth is when the two points of entrance are locked in with each other, and within a cable and a half of the sandy spit that extends off the western end of a high and thickly wooded island. The ground is excellent, and so tenacious, that it was with difficulty that the Beagle lifted her anchors. Shelter, wood, and water, however, are the only advantages offered by the harbour. Environed by lofty mountains, some fourteen and eighteen hundred feet high, and ice-filled vallies and ravines—it is chill, damp, and dreary. A few birds, and a small number of hair seals, were the only living animals seen by us. Not a trace of human beings was observed.

For knowing Kelly Harbour the glacier is a capital leading-mark. It is a large field of ice, lying on the low part of the coast, about two miles to the northward of the harbour. The water at the anchorage, at half tide, was perfectly fresh, but was too muddied to be fit for immediate use. When in the fair way of the harbour, the Sugar Loaf in Holloway Sound will be seen just on with the end of the land, to the north of Purcell Island, bearing W. 1° N. by compass. The latitude of the north point of the harbour is 46° 59′, and the lon. 74° 05′ 30″; the variation about 20°. The mountain on the south shore, three miles and a half east-southerly from the north point, is 1,540 feet high.

Situation.

St. Estevan Gulf.

St. Estevan Gulf. The entrance of this gulf, which is situated nine miles north of the N. E. end of Xavier Island, is four miles wide. The land, on the western side, Forelius Peninsula, is a narrow tongue of land nearly five leagues long.

The eastern side of the gulf is a long sandy beach, curving round to the N. W. towards the entrance of the River San Tadeo, between which and Cirujano Island, forming the south (or rather the west) point of entrance, the width is less than five miles; and at a league farther to the westward, it is not more than three miles and a half across. Here, in the centre there is a small islet called Deadtree Island.

Beyond this is St. Quentin Sound, ten miles deep;* and, at its N. W. corner, Aldunate Inlet extends in for about eight miles. St. Quentin's Sound terminates in continuous low land, with patches of sandy beach, over which, among other lofty mountains, the Dome of St. Paul's is seen. The shores are thickly wooded with shapely and well-grown trees; the land near the beach, for the most part, is low, rising into mountainous peaks; a little distance in the interior of which, some are 1,500 feet high, but they are not craggy. St. Quentin Sound.

St. Estevan Gulf is one of the best harbours of the coast, being easy of access, and with moderate depth of water all over; with good holding ground, and a clean bottom. The best anchorage is at about two miles above Deadtree Island, in from 4 to 6 fathoms, sandy bottom. This will be at two miles from either shore, but the berth is perfectly land-locked; and, if necessary, anchorage may be taken up much nearer to it. Anchorage.

Cirujano Island, above mentioned, is that on which the Surgeon of the Wager was buried.† The missionary priests describe a port on the island, called San Tomas.‡ The island is separated from the extremity of Forelius Peninsula by a strait, one mile to three quarters of a mile wide. Cirujano Island.

The mouth of the River San Tadeo, is easily distinguished on entering the gulf, by the sand hills on each side of its entrance, and the bearing of the east trend of Cirujano Island, S. W. ½ S., River San Tadeo.

* Agueros, p. 209.

† Of this circumstance I was informed by Pedro Osorio, an old soldier, whom I saw at Chiloe, who formed one of the party of the missionary voyages. I asked him why it was called El Cirujano, to which he replied: "Porque alli murió el cirujano del Wager."—(Because the Surgeon of the Wager died there.) Pedro Osorio knew Byron's party well, although it was eighty-eight years since they visited the island.—See also Byron's Narrative, p. 147.

‡ Agueros, p. 231.

River San Tadeo.

(by compass S. by W. ¾ W.) A sandy beach extends to the east and west of it for many miles; the land is low and marshy, and covered with stumps of dead trees. It has a bar entrance, much of which must be nearly dry at spring tides. A heavy swell breaks upon it for its whole length, so that no opening or swatch way is left, and, excepting in very fine weather, it is very hazardous to cross. At the mouth, the breadth is not more than a quarter of a mile; but, within the entrance, it opens to a basin of some extent; and at three miles up it is 300 yards wide, after which it gradually narrows. Nine miles from the entrance, the stream is divided into two arms; the Northern, or BLACK River, takes a northerly, and the other an easterly direction. The former is a strong and rapid stream, quite uninfluenced by tide, which, however, extends for a short distance up the eastern arm; after which, the current down becomes gradually as strong as in the Black River. The banks of the latter are comparatively barren those of the Black River, where the wood is very thick. The courses of both arms are very tortuous, and the bed of the river so choked with trunks and branches of trees as to prevent its complete exploration, as well as the detection of the DESECHO the place where the Indians carry their canoes across the Isthmus of Ofqui.*

Purcell Island.

PURCELL ISLAND is separated from the land of FORELIUS PENINSULA by a good channel, two miles wide; it is moderately high and thickly wooded, and about six miles in circuit. About mid-channel, and nearly abreast of the east end of the island, is a rock only a few feet above the water. The channel to the south of the rock is from 18 to 22 fathoms deep, and the bottom sandy.

Upon the peninsula, opposite the west end of PURCELL ISLAND, is an ISTHMUS of low, sandy land, scarcely a mile wide; the one over which I think it may be inferred, from the Narrative,† that the canoes in which Byron and his companions were embarked, were carried. One day's journey by land to the west of this isthmus, Byron describes a river, up which the Indian guides attempted to take the Wager's barge.‡ This river, if it exists, probably falls into BAD BAY.

* See Byron's Narrative, p. 119 to 156; and Agueros, p. 209, 229, and 241.

† Byron's Narrative, p. 119 and 120. ‡ Ibid, p. 108 and 111.

The Beagle anchored in BAD BAY after dark, in 8 fathoms, sandy bottom, and left it at 9 o'clock the following morning. Of this place, Captain Stokes remarks: "At daylight, we found that we had anchored in a small bay about half a mile off a shingle beach, on which, as well as on every part of the shore, a furious surf raged that effectually prevented our landing to get chronometer sights. The mouth of this bay is N. 50° E. (*mag.*) nine leagues from Cape Tres Montes, which in clear weather may be seen from its mouth. Like all this shore of the gulf, it is completely open to the S. W., and a heavy rolling sea. About nine A. M., we left it, and proceeded to trace the coast to the S. E."* Bad Bay.

To the westward, between BAD BAY and the land of CAPE TRES MONTES, is an extensive bight, sixteen miles wide, and about twelve deep. The centre is occupied by a group of Islands, called MARINE Islands,† upon which the SUGAR LOAF, a mountain 1,840 feet high, is very conspicuous. It was seen from the Wager the day before her wreck.‡ Upon the Main, five miles and three quarters N. 15° E. from the Sugar Loaf, is another equally remarkable mountain, called the DOME OF ST. PAUL'S, 2,284 feet high.

NEUMAN INLET, at the N. E. corner of this gulf, extends for seventeen miles into the land, where it terminates; but it is of no use, as the water is too deep for anchorage. It is the resort of large numbers of hair seal. At the north-west corner is HOPPNER SOUND, about five miles in extent. At its south-west end is a deep inlet, extending seven miles to the S. W., and reaching to within two miles of the sea coast, from which it is separated by an isthmus of low and thickly-wooded land. Captain Stokes walked across it to the sea-beach, from whence he saw Cape RAPER. The Beagle anchored at the bottom of HOPPNER Sound, off the mouth of the inlet. The mouth of the sound is very much blocked up by the MARINE Islands; but the southern channel, although narrow, has plenty of water. On the south-west side of the Marine Islands is HOLLOWAY Sound, in Newman Inlet. Hoppner Sound. Holloway Sound.

* Stokes' MS. Journal.

† It was here that four Marines voluntarily remained on shore during Byron's perilous boat voyage, after the wreck of the Wager.—Byron's Narrative, p. 85.

‡ Bulkely and Cummings, p. 15

Port Otway. which is PORT OTWAY, an inlet extending for five miles into the land, in a S. W. direction.

The entrance of PORT OTWAY is on the west-side of Holloway Sound, about fourteen or fifteen miles distant from Cape Tres Montes, and may be readily known by its being the first opening after passing the cape. Off the mouth are the Entrance Isles, among which is the LOGAN Rock, having a strong resemblance to the celebrated rock whose name it bears. It is broad and flat at the top, and decreases to its base, which is very small, and connected to the rock upon which it seems to rest. Immediately within the entrance on the west shore is a sandy beach, over which a rivulet discharges itself into the bay. Here anchorage may be had in 9 or 10 fathoms. It is by far the most convenient one the port affords. The plan will shew the particulars of the inlet, which contains anchorage all over it, but the depth is generally inconveniently great, from 20 to 30 fathoms.

Cape Tres Montes. CAPE TRES MONTES is a bold and remarkable headland, rising from the sea to the height of 2,000 feet. It lies in lat. 46° 58′ 57″, and lon. 75° 27′ 30″, and is the south extremity of the Peninsula of Tres Montes.

To the northward of it is CAPE RAPER, in lat. 46° 48′ 25″. Rocks and breakers extend off it for half a league to seaward.

POINT MITFORD REES, the northernmost land seen by the Beagle, is in lat. 46° 43′.

Of the WIND and WEATHER.

The climate of the coast of Western Patagonia, described in this section, is cold, damp, and tempestuous. The reigning wind is north-west; but if it blows hard from that quarter, the wind is very liable to shift suddenly round to the westward and blow a heavy gale, which raises a mountainous cross sea. These westerly gales do not generally last long, but veer round to the southward, when the weather, if the barometer rises, will probably clear up. Should they, however, back round to the N. W. again, and the barometer keep low, or oscillate, the weather will, doubtless, be worse. Easterly winds are of rare occurrence; they are accompanied with fine clear weather; but westerly

winds bring with them a constant fall of rain, and a quick succession of hard squalls of wind and hail. Wind and Weather.

Should a vessel be near the coast during one of these northerly gales, it would be advisable for her to make an offing as quickly as possible, to guard against the sudden shift to the westward that is almost certain to ensue. The discovery, however, of the anchorages of Port Henry, Port Santa Barbara, Port Otway, and St. Quentin's Sound, has very much reduced the dangers of the lee shore; and a refuge in either of them will always be preferable to passing a night on this coast in a gale of wind.

The barometer falls with northerly and westerly winds, but rises with southerly. It is at its minimum height with N. W. winds, and at its maximum when the wind is S. E. The temperature is rarely so low as forty degrees, excepting in the winter months. At Port Otway, in the Gulf of Peñas, the maximum and minimum for nineteen days, in the month of June, were 51° and 27½°.

Of the Tides.

High-Water, at most parts of this coast, takes place within half an hour on either side of noon. The stream is inconsiderable, and the rise and fall rarely more than six feet. Tides.

The variation of the compass, at the western entrance of the strait, is 23¾°; at Port Henry, 21°; at Port Santa Barbara, 19°; at Xavier Island, 20°; and at Port Otway, 20½°. Variation.

SECTION IX.

Of the INTERIOR SOUNDS and CHANNELS between the Strait of MAGALHAENS and the Gulf of PEÑAS.

The western coast, between the Strait of Magalhaens and the Gulf of Peñas, is formed by a succession of islands of considerable extent, the largest of which, WELLINGTON ISLAND, occupies a length of coast of one hundred and thirty-eight miles. It is separated from the main by the MESIER and WIDE CHANNELS;* and from MADRE DE DIOS by the GULF of TRINIDAD. MADRE DE DIOS, which is probably composed of several islands, has for its inner or eastern boundary the CONCEPCION STRAIT.

HANOVER ISLAND has the SARMIENTO and ESTEVAN CHANNELS on its eastern side, and on the south is separated from QUEEN ADELAIDE ARCHIPELAGO by LORD NELSON STRAIT, which communicates by SMYTH CHANNEL with the STRAIT of MAGALHAENS

Smyth Channel.

SMYTH CHANNNEL commences in the strait at BEAUFORT BAY, on the eastern side of CAPE PHILLIP; N. 78° E., five miles and a half from which are the FAIRWAY ISLES; and, at a little more than six miles from the cape, on the west shore, is

Deep Harbour.

the anchorage of DEEP HARBOUR, the entrance of which is a quarter of a mile wide. The anchorage is about half a mile within the head, off the entrance of a lagoon, in from 30 to 35 fathoms. North and south of the port are inlets, each one mile deep. In entering, there is a patch of kelp on the starboard hand, and the shore is fronted for a short distance off by rocks.

* Brazo Ancho of Sarmiento, p. 99.

Good's Bay, the next anchorage, is better than the last, the depth being from 20 to 25 fathoms. It is convenient for vessels going to the northward, but when bound in the opposite direction North Anchorage will be better, from the depth being less; but it is small, and the entrance is more fronted by rocks than Good's Bay. If it is not intended to anchor in either of the above places, the widest and best channel is to the eastward of Middle Island. There is a plan of these anchorages. Good's Bay. North Anchorage.

Off the N. E. point of Shoal Island is a rocky patch, upon which the Adelaide struck. The channel, for the next four miles, is rather intricate; but all the dangers are pointed out. Shoal.

Opposite to Cape Colworth is Clapperton Inlet, beyond which is a considerable tract of low country,—a rare sight in these regions. Two miles further, on the eastern side, is Hose Harbour, suitable for a small vessel; and, on the opposite shore, is Retreat Bay, fronted by low rocky islets. The depth within is 24 fathoms. Cape Colworth. Hose Harbour. Retreat Bay.

Onwards, the channel is clear as far as Oake Bay, where the depth is 9 fathoms: but the anchorage is better among the Otter Islands, the depth being 6 and 7 fathoms, and the ground clean. Oake Bay and Otter Islands.

The channel, for the next eight miles, becomes more strewed with islands and rocks, and has much shoal water off every low point. The coast, also, is very low on the eastern shore, as far as the base of Mount Burney, which is five thousand eight hundred feet high, and covered with perpetual snow.

The best Channel is on the east side of the Otter Islands, and between the Summer Isles and Long Island, for which the chart and a good look out for kelp will be sufficient guides.

Fortune Bay is at the south-east extremity of, apparently, an island in the entrance of a deep channel, which is, probably, one that Mr. Cutler, the master of an American sealing vessel, passed through.* Upon the supposition of its leading through Fortune Bay.

* We met this intelligent person two or three different times whilst employed upon the survey, and received much valuable, and what afterwards proved to be correct, information from him, which I am here much gratified to have an opportunity of acknowledging.—*P. P. K.*

Fortune Bay.

the land, and insulating the western shore of Smyth Channel, to the north of Point Palmer; the latter is distinguished by the name of RENNEL ISLAND. FORTUNE BAY is a very convenient and good anchorage, the depth being moderate, and bottom good; the best berth is within Low Island, in from 8 to 12 fathoms. At the bottom of the bay is a thickly wooded valley, with a fresh water stream.

Isthmus Bay.

A league to the north of POINT PALMER, on the opposite shore, is ISTHMUS BAY, affording excellent anchorage, but open to S. W., which here is, not of much moment, for the channel is only two miles wide. The bottom of ISTHMUS BAY is formed by a very narrow strip of land, separating it from what I have no doubt is Sarmiento's ORACION BAY.* Five miles north of Point Palmer is WELCOME BAY, also affording an excellent place to anchor in, with moderate depth and good bottom. A plan was made of it.

Anchorages near Zach Peninsula.

In SANDY BAY, on the east side of the channel, and off INLET Bay, on the opposite shore, there are good anchorages: both have a moderate depth, and are sheltered from the prevailing winds, which generally are north-westerly.

In latitude 52° 01′ is VICTORY PASSAGE,† separating ZACH PENINSULA from HUNTER ISLAND, and communicating with UNION SOUND, which leads to the Ancon Sin Salida of Sarmiento.‡ On the west side of Hunter Island is ISLAND BAY, with good anchorage both to the north and south of the islets. The Adelaide anchored in the latter in 17 fathoms.

Anchorages near Piazzi Island.

At the south extremity of PIAZZI ISLAND is HAMPER BAY, with anchorage in from 7 to 15 fathoms. Here the channel widens to three miles and a half; but, at two leagues farther on, near CERES ISLAND, under the S. E. end of which the Adelaide anchored in 10 fathoms, it narrows to two miles. ROCKY COVE is not to be recommended, and NARROW CREEK seems confined.

North entrance of Smyth Channel.

Hence to the mouth of the channel, which again widens here to five miles, and in which, during strong N. W. winds the sea runs heavy, we know of no anchorage; but a small vessel in

* Sarmiento, p. 144. † Ibid, p, 139. ‡ Ibid, p. 142.

want will, doubtless, find many, by sending her boat in search. The Adelaide anchored among the DIANA ISLANDS, and in MONTAGUE BAY, having passed through HEYWOOD PASSAGE. The northern point of Piazzi Island is Sarmiento's West Point, (Punta del Oeste*), and a league to the south is his Punta de Mas-al-Oesté, or Point more West. Lieutenant Skyring concludes the Journal of his survey of Smyth Channel with the following remarks: North entrance of Smyth Channel.

"So generally, indeed, do the northerly winds prevail, that it would be troublesome even for working vessels to make a passage to the northward; but it is a safe channel for small craft at any time. The tides are regular; the rise and fall at the southern entrance is eight and nine feet, but at the northern only five and six. The flood tide always sets to the northward, and the strength of the stream is from half to one mile and a half an hour; so that a vessel is not so likely to be detained here for any length of time, as she would be in the Strait of Magalhaens, where there is little or no assistance felt from westerly tides. The channel, besides, is comparatively free from sea, and the winds are not so tempestuous."—Skyring's MS.

As the SOUNDS within SMYTH CHANNEL will never be used for any purpose of navigation, little need be said in a work destined solely for the use of shipping frequenting the coast. The chart will be sufficient to refer to for every purpose of curiosity or information. They possess many anchorages for small vessels, affording both shelter and security. Interior sounds.

Sarmiento,† on his third boat-voyage to discover a passage through the land into the Strait of Magalhaens, gives a detailed and very interesting account of his proceedings. All his descriptions are so good, that we had no hesitation in assigning positions to those places he mentions, to all of which his names have been appended. CAPE AÑO-NUEVO‡ cannot be mistaken, and the description of his ANCON SIN SALIDA is perfect. He says: "The Morro of Año-nuevo trends round to the

* Sarmiento, p. 148. † Ibid, p. 120, et seq. ‡ Ibid, p. 140, et seq.

Sarmiento's account of Ancon Sin Salida.

S. E. and S. S. E. for a league to the first water ravine that descends from the summit. In an east direction from this, appears a large mouth of a channel, about two leagues off. We went to it, and found it to be a bay without a thoroughfare, forming a cove to the north, about a league deep; so that, finding ourselves embayed, we returned to the entrance, which we had previously reached with great labour and fatigue. This bight has four islets. The bay, from the islets to the westward, has a sandy beach, backed by a low country for more than a league and a half to the Morro of Año-nuevo."*

Anchorages in the Interior Sound.

The anchorages that were used by the Adelaide upon the examination of the interior sounds, were as follows:—

Leeward Bay, exposed, and being upon the leeward shore, is not to be recommended.

Whale Boat Bay, about one mile to the east of Grey Cape.

A small cove on the north shore of Kirke Narrows, about a mile to the east of Cape Retford.

Fog Bay, two miles and a half to the north of the east end of Kirke Narrows.

Easter Bay, a convenient anchorage within White Narrows.

Canal of the Mountains.

The Canal of the Mountains, nearly forty miles long, is bounded on each side by the high snow-capped Cordillera, the western side being by very much the higher land, and having a glacier of twenty miles in extent, running parallel with the canal. Eighteen miles from Cape Earnest, where the canal

* "Este Morro de Año-nuevo por la cabeza de la bando del Leste vo eo redondo ol Sueste y Susueste como uoa legua hasta la primera quebrado de aguo qoe descieode de la combre por un rio, y Leste-oeste con este rio parece una gran boca de conal como dos leguas. Fuimos allá, y hallomos ser Ensenada sin salida, y hace cala á la vuelta del Norte como una legua; y como nos vimos ensenados, volvimos a salir pur donde habiamos entrado con harta pena. Tiene este codo qoatro isletas que haceo canales; y esta Ensenada desde las isletas paro el oeste vo haciendo playa de arena y tierra, playa boxa, mas de legua y media hasto el Morro alto de Año-nuevo."—Sarmiento, p. 142.

A comparison of this account of Sarmiento's with our chart, cannot fail to claim for that excellent and persevering navigator the admiration of all geographers. Nor should the late Admiral Burney be forgotten; for the plan formed principally by him, from Sarmiento's Journal and other documents, is an extraordinarily correct delineation of what our chart now shews to be the true geographical features of the place.

commences, the channel is contracted to the width of about half a mile, otherwise its width is from one to two miles.

Worsley Bay. WORSLEY BAY and SOUND extend fifteen miles into the land.

Last Hope Inlet. LAST HOPE INLET is forty miles in length. Its mouth is three miles and a half wide, but at eight miles the breadth is contracted by islands* to less than a mile, the channel being 5 to 14 fathoms deep. Beyond this narrow the sound trends to the W. N. W.

Disappointment Bay. DISAPPOINTMENT BAY. The land at the bottom is very low, and thickly covered with stunted wood. Mr. Kirke traced its shores, and found them to be formed by a flat stony beach, and the water so shallow, that the boat could seldom approach it within a quarter of a mile. A considerable body of water was noticed by him over the low land; probably a large lagoon, for it communicates with the bay by a rapid stream fifty yards wide. No high land was seen in an easterly direction; so that the country between Disappointment Bay and the eastern coast may probably be a continued *pampa*, or plain, like the coast of Eastern Patagonia.

Obstruction Sound. OBSTRUCTION SOUND extends for thirty miles in a south by east direction, and then for fifteen more to the W. S. W., where it terminates. It is separated from the bottom of Skyring Water by a ridge of hills, perhaps twelve miles across. Some water was seen from a height, about six miles off, in the intervening space, but the shores were so carefully traced that Lieutenant Skyring, who examined it, feels satisfied that no communication exists. This question, however, will probably be set at rest by Captain Fitzroy, during his intended voyage.

A large plan was made of these sounds, to which a reference will give every desired information.

Sarmiento Channel. SARMIENTO CHANNEL, communicating between the east side of PIAZZI ISLAND and STAINES PENINSULA, continues to the northward of the mouth of PEEL INLET, where it joins the SAN ESTEVAN CHANNEL, from which it is separated by the Islands of VANCOUVER and ESPERANZA: between these is a passage nearly a league wide, but strewed with islands.

Relief Harbour. RELIEF HARBOUR, at the south end of Vancouver Island, is a

* These islets were covered with black-necked Swans, and the sound generally is well stocked with birds.

Puerto Bueno. convenient anchorage; but the best hereabouts is PUERTO BUENO, first noticed by Sarmiento.* It affords excellent anchorage and a moderate depth of water; the latter of very unusual occurrence.

Schooner Cove. A small cove, round the north point, called SCHOONER COVE, is well adapted for a small vessel, and may be used in preference even to Puerto Bueno.

San Estevan Channel. Escape Bay. In SAN ESTEVAN CHANNEL, ESCAPE BAY, although small, is convenient and well sheltered. Opposite the south end of Esperanza Island is the deep opening of

Ellen Bay. ELLEN BAY, which may probably be a channel passing through and dividing Hanover Island. To the north the anchorages of

Rejoice Harbour. REJOICE HARBOUR and ANCHOR BAY are commodious and useful.

Peel Inlet. PEEL INLET extends in for seven leagues, communicating with PITT CHANNEL, and insulating CHATHAM ISLAND, which is separated from the north end of Hanover Island by a continuation of the Sarmiento and San Estevan Channels, of which

Guia Narrows. the principal feature is the GUIA NARROWS.† These narrows are six miles long, and, excepting the north end, where it is only one-fifth of a mile wide, is from half to one mile broad. The

Tides. tides here are not very rapid. High-water at full and change takes place at $2^h\ 8'$, the flood running to the southward. At the south entrance of San Estevan Channel, the reverse is the case, of which, for vessels passing through, some advantage may be taken.

The north-west coast of CHATHAM ISLAND has many bights

Guard Bay. and coves fronted by islands, among which is GUARD BAY, where the Adelaide anchored; but the coast is too exposed to the sea and prevailing winds, to offer much convenient or even secure shelter.

The north-west points of Hanover and Chatham Islands are more than ten miles apart, and midway between them is situated Sarmiento's INNOCENTS ISLAND (Isla de los Ignocentes).‡

CONCEPCION STRAIT separates Madre de Dios and its island

* Sarmiento, p. 133.

† So called after Sarmiento's boat. It was by this route he passed down to the examination of his Ancon Sin Salida; he describes it as a narrow, 300 paces wide. — Sarmiento, p. 130.

‡ Ibid.

to the southward from the main land. It commences at Cape Santiago, in lat. 50¾°, and joins the WIDE CHANNEL, or Brazo Ancho of Sarmiento, in 50° 05′. On the west side (the eastern coast of Madre de Dios) are several convenient anchorages, particularly WALKER BAY, a bay to the north of POINT MICHAEL, and TOM BAY; all of which, being on the weather shore, afford secure anchorage: but the squalls off the high land are not less felt than in other parts. Concepcion Strait.

ST. ANDREW SOUND is four leagues wide; but the mouth is much occupied by the CANNING ISLES, upon the northernmost of which, at the south-west end, is PORTLAND BAY, a good anchorage for a small vessel, in 9 fathoms. The principal entrance of St. Andrew Sound is to the north of Chatham Island. It is five miles wide, and, at six leagues within, divides into two arms; the northern one is five or six leagues long, and terminates; but the southern channel, which is PITT Channel, trends behind Chatham Island, and communicates, as before mentioned, with Peel Inlet. St. Andrew's Sound.

The anchorage of EXPECTATION BAY, five leagues within the sound, at the east extremity of the Kentish Isles, was used by the Adelaide in her examination of these inlets. Expectation Bay.

At POINT BRAZO ANCHO the Gulf of Trinidad commences, and the Concepcion Strait terminates; for its continuation to the N. E. bears the name of WIDE CHANNEL, which is forty miles long, and from one and three-quarters to three and half miles broad. Point Brazo Ancho.

At SAUMAREZ Island it joins the MESIER Channel, and to the N. E. communicates with SIR GEORGE EYRE Sound, which is forty miles long, and with an average breadth of four miles. Near the entrance on the east side was found a large rookery of seals, and another, thirteen miles farther up, on the same side, in latitude 48° 21′. Mesier Channel. Sir George Eyre Sound.

The southern end of the MESIER CHANNEL, for nearly ten leagues, is named INDIAN REACH. It is narrow, and has many islets, but the water is deep. Then follows ENGLISH NARROWS, twelve miles long, and from half to one mile and a quarter wide; but many parts are contracted by islands to four hundred Indian Reach, and English Narrows.

Mesier Channel.

yards. The passage lies on the west side of the channel, to the westward of all the islands.

From the north end of the Narrows to the outlet of the MESIER, at TARN BAY, in the GULF OF PEÑAS, a distance of seventy-five miles, the channel is quite open and free from all impediment.

Anchorages in Wide and Mesier Channels.

The ANCHORAGES in the WIDE and MESIER CHANNELS are more numerous than we have any account of. Those occupied by the Adelaide in her course through, are as follows, viz:—

FATAL BAY, in latitude 47° 55′, on the western shore, at the north entrance of the channel, insulating MILLAR ISLAND. This bay is open and exposed.

ISLAND HARBOUR, on the east shore, in latitude 48° 06′ 03″, is a small but excellent land-locked anchorage, with good holding ground; wood and water close at hand, and abundance of fish.

WATERFALL BAY, in lat. 48° 17′; at the entrance of an inlet on the east side of the channel.

Tides.

At this part of the Mesier Channel the tides are regular, and run six hours each way, the flood setting N. by W.

WHITE KELP COVE, on the north side of Lion Bay, about one mile within the head, is confined, and only fit for a small vessel.

HALT BAY, on the east shore, at the north end of the English Narrows, in latitude 48° 54′. Here the flood sets to the S. S. E., and the tide being confined by the narrow width of the channel, runs with considerable strength.

Tides.

LEVEL BAY, on the eastern side of the channel, at the south end of the narrows; is in latitude 49° 07′ 30″.

ROCKY BIGHT, opposite the N. E. point of Saumarez Island, in from 17 to 12 fathoms.

FURY COVE, near RED CAPE, the extremity of EXMOUTH PROMONTORY. It is very confined, there not being room for more than two small vessels; but the ground is good, and although open to the S. W., it is a secure haven.

SANDY BAY, on the west shore of Wide Channel, in lat. 19° 45′ 30″.

SMALL CRAFT BIGHT, also on the west shore, near the south

end of the Wide Channel, is of small size, but answers every purpose of a stopping-place for the night.

Anchorages in the Wide and Mesier Channels.

Open Bay, on the east shore, opposite the Gulf of Trinidad. The anchorage is sheltered by two islands; but it is too exposed to trust a vessel in, and therefore not to be recommended.

Besides the above anchorages, there are many equally convenient, and, perhaps, much better, that may be occupied by vessels navigating these channels. Every bight offers an anchorage, and almost any may be entered with safety. On all occasions the weather shore should be preferred, and a shelving coast is generally fronted by shoaler soundings, and more likely to afford moderate depth of water than the steep-sided coasts; for in the great depth of water alone consists the difficulty of navigating these channels.

Throughout the whole space between the Strait of Magalhaens and the Gulf of Peñas, there is abundance of wood and water, fish, shell-fish, celery, and birds.

SECTION X.

REMARKS upon the PASSAGE round CAPE HORN, and to and from the ATLANTIC and PACIFIC Oceans, through the STRAIT OF MAGALHAENS.

Advantageous to keep close to the land.

SHIPS bound from the Atlantic to any of the ports in the Pacific, will find it advantageous to keep within 100 miles of the coast of Eastern Patagonia, as well to avoid the heavy sea that is raised by the westerly gales, which prevail to the eastward, and increase in strength according to the distance from the land, as to profit by the variableness of the wind when fixed in the western board. Near the coast, from April to September, when the sun has north declination, the winds prevail more from the W. N. W. to N. N. W. than from any other quarter. Easterly gales are of very rare occurrence, but even when they do blow, the direction being obliquely upon the coast, I do not consider it at all hazardous to keep the land on board. In the opposite season, when the sun has south declination, the winds will incline from the southward of west, and frequently blow hard; but, as the coast is a weather shore, the sea goes down immediately after the gale. In this season, although the winds are generally against a ship's making quick progress, yet as they seldom remain fixed in one point, and frequently shift backward and forward 6 or 8 points in as many hours, advantage may be taken of the change so as to keep close in with the coast.

Winds during the winter months.

Easterly gales of rare occurrence.

Winds during the summer.

Winds variable near this coast.

To make the land near Cape Blanco.

Having once made the land, which should be done to the southward of Cape Blanco, it will be beneficial to keep it topping on the horizon, until the entrance of the Strait of Magalhaens be passed.

With respect to this part of the voyage, whether to pass through Strait Le Maire, or round Staten Island, much difference of opinion exists. Prudence, I think, suggests the latter; yet I should very reluctantly give up the opportunity that might offer of clearing the Strait, and therefore of being so much more to windward. With a southerly wind it would not be advisable to attempt the strait; for, with a weather tide, the sea runs very cross and deep, and might severely injure and endanger the safety of a small vessel, and to a large one do much damage. In calm weather it would be still more imprudent (unless the western side of the Strait can be reached, where a ship might anchor), on account of the tides setting over to the Staten Island side; where, if it becomes necessary to anchor, it would necessarily be in very deep water, and close to the land. With a northerly wind the route seems not only practicable, but very advantageous, and it would require some resolution to give up the opportunity so invitingly offered. I doubt whether northerly winds, unless they are very strong, blow through the Strait—if not, a ship is drifted over to the eastern shores, where, from the force of the tides, she must be quite unmanageable.

Passage through Strait Le Maire.

Not advisable with southerly winds.

But with northerly winds practicable.

Northerly winds do not last.

Captain Fitz Roy, whose authority, from his experience, must be very good, seems to think there is neither difficulty nor risk in passing the strait (see p. 105). The only danger that does exist, and that may be an imaginary one, is the failure of the wind. Ships passing through it from the south, are not so liable to the failure of the south-westerly wind, unless it be light, and then it will probably be from the N. W., at the northern end of the strait. The anchorage in Good Success Bay, however, is admirably situated, should the wind or tide fail. (See p. 104.)

Passage through the Strait from the southward.

In passing to leeward of Staten Island, the tide race, which extends for some distance off Cape St. John, at the N. E. end of the island, must be avoided, otherwise there exist no dangers. (See note at p. 106, relating to the tide.)

Tide race off Cape St. John.

The anchorage under New Year's Islands, although it is a wild one and the bottom bad, and the tide very strong, yet offers good shelter from south-west winds, and might be occupied with advantage during the existence of a gale from that quarter; since it is unfavourable for ships bound round the Horn.

Anchorage under New Year's Islands.

To stand to the southward as far as 60° S. lat.

After passing Staten Island, if the wind be westerly, the ship should be kept upon the starboard tack, unless it veers to the southward of S. S. W., until she reaches the latitude of 60° south, and then upon that tack upon which most westing may be made. In this parallel, however, the wind is thought to prevail more from the eastward than from any other quarter. Never having passed round Cape Horn in the summer season, I may not perhaps be justified in opposing my opinion to that of others; who, having tried both seasons, give the preference to the summer months. The advantage of long days is certainly very great, but from my experience of the winds and weather during these opposite seasons at Port Famine, I preferred the winter passage, and in our subsequent experience of it, found no reason to alter my opinion. Easterly and northerly winds prevail in the winter off the cape, whilst southerly and westerly winds are constant during the summer months; and not only are the winds more favourable in the winter, but they are moderate in comparison to the fury of the summer gales. (See p. 112.)

Winter passage preferable to the summer.

Advice after passing round Tierra del Fuego.

Having passed the meridian of Cape Pillar, it will yet be advisable to take every opportunity of making westing in preference to northing until reaching the meridian of 82° or 84°, which will enable a ship to steer through the North-westerly winds that prevail between the parallels of 50° and 54°. (See Hall's South America, Appendix.)

North-west winds

Barometer.

With respect to the utility of the barometer as an indicator of the weather that is experienced off Cape Horn, I do not think it can be considered so unfailing a guide as it is in the lower or middle latitudes. Captain Fitz Roy, however, has a better opinion of the indications shewn by this valuable instrument: my opinion is, that although the rise or fall precedes the change, yet it more frequently accompanies it. The following sketch of the movement of the barometer, and of the weather that we experienced, may not be without its use.

Being to the north of Staten Island for three days preceding full moon, which occurred on the 3rd April, (1829,) we had very foggy weather, with light winds from the eastward and northward, causing a fall of the mercury from 29·90 to 29·56. On the day of full moon the column rose, and we had a beautiful

morning, during which the high mountains of Staten Island were quite unclouded, as were also those of Tierra del Fuego. At noon, however, a fresh gale from the S. W. set in, and enveloped the land with a dense mist. No sooner had the wind changed, than the mercury rose to 29·95, but fell again the next morning; and with the descent the wind veered round to, and blew strong from N. W., with thick cloudy weather and rain, which continued until the following noon, when the wind veered to S. W., the barometer at 29·54, having slightly risen; but after the change it fell and continued to descend gradually until midnight, when we had a fresh gale from W. S. W. When this wind set in, the mercury rose, and continued to rise, as the wind veered without decreasing in strength to S. S. W., until it reached 29·95, when it fell again and the weather moderated, but without any change of wind. During the descent of the mercury, the sky with us was dull and overcast with squalls of wind and rain, but on shore it seemed to be very fine sunshiny weather. Weather off Cape Horn.

The column now fell to 29·23, and during its descent the weather remained the same, dull and showery; but as soon as the mercury became stationary, a fresh breeze set in from the southward, with fine weather.

After this to new moon the weather was very unsettled, the wind veering between South and W. S. W.; the barometer rising as it veered to the former, and falling as it became more westerly; but on no occasion did it precede the change.

The mean height of the barometer is about 29·5.

The mercury stands lowest with N. W. winds, and highest with S. E.

With the wind at N. W. or northerly the mercury is low, if it falls to 29 inches or 28·80, a S. W. gale may be expected, but does not commence until the column has ceased to descend. It frequently however falls without being followed by this change. In the month of June, at Port Famine, the barometer fell to 28·17, and afterwards gradually rose to 30·5, which was followed by cold weather, in which the thermometer stood at 12°.

The following table shews the mean temperature and pressure as registered at the Observatory at Port Famine in the Strait.

Meteorological Abstract.

1828.	Temperature.	Pressure.
February ..	51·1	29·40
March	49·4	29·64
April	41·2	29·57
May	35·5	29·30
June	32·9	29·28
July	33·0	29·57
August	33·2	29·28

Of the Passage to and from the Atlantic and Pacific Oceans, by the Strait of Magalhaens.

Passage through the Strait.

The difficulties that present themselves to Navigators in passing round Cape Horn, as well from adverse winds as the severe gales and heavy sea that they are exposed to, are so great, that the Strait of Magalhaens has naturally been looked to as a route by which they may be avoided. Hitherto no chart has existed in which much confidence could be placed; but by the present survey, the navigation through it, independent of wind and weather, has been rendered much easier; since a correct delineation of its shores, and plans of the anchorages, have been made; and in the preceding pages sufficient descriptions of them have been given to assure the navigator of his place, and furnish him with advice as to his proceedings. The local difficulties therefore have been removed, but there remain much more serious ones, which I should not recommend a large, or even any but a very active and fast-sailing, square-rigged vessel to encounter, unless detention be not an object of importance

For a square-rigged vessel bound through the Strait, the following directions will be useful:—

In the eastern entrance, the winds will frequently favour a ship's arrival off the First Narrow; where, if she selects a good anchorage on the bank which bounds the northern side of the channel (see p. 20 to 22), she may await an opportunity of passing through the First Narrow and of reaching Gregory Bay; where also a delay may safely be made for the purpose of passing the Second Narrow and arriving at the neighbourhood of Cape Negro; at which place the difficulties and dangers of the eastern entrance cease. Directions for entering the Strait.

The dangers being carefully placed on the chart, and sufficiently described in the preceding part of this memoir, nothing need be repeated here; and indeed much must be left to the judgment and discretion of the navigator.

The passage of the First Narrow, the anchorage to the eastward of, and in, Gregory Bay, the passage of the Second Narrow, the anchorage to the north of Elizabeth Island, and the passage round its south side, are described between pages 20 and 27.

The tides answer best for vessels entering the Strait at the period of full and change of the moon, since there are two westerly tides in the day. In the winter season, if the morning tide be not sufficient to carry a vessel through the First Narrow, she may return to Possession Bay, select an anchorage, and be secured again before night; or, in the summer, if she has passed the Narrow, and enabled to anchor for the tide, there will be sufficient daylight for her to proceed with the following tide to Gregory Bay, or at least to a safe anchorage off the peaked hillocks, on the north shore. (See page 23.) Best time to pass the First Narrow.

I have twice attempted to pass the First Narrow, and been obliged to return to the anchorage in Possession Bay (see p. 21); and twice I have passed through it against a strong breeze blowing directly through, by aid of the tide; which runs, in the narrower parts, at the rate of ten or twelve miles an hour. When the tide and wind are opposed to each other, the sea is very deep and heavy, and breaks high over the decks; it is therefore advisable to close reef, or lower the topsails on the cap, and drift through; for the tide, if at the springs, will generally be sufficient to carry Tide in the First Narrow.

a ship to an anchorage although, not always to one that it would be safe to pass the night at. On this account, it would be prudent to return; for, although the holding ground is exceedingly good, yet, to part in the night, or drift towards, or through the NARROW, could scarcely happen without accident.

Tide in the Second Narrow.

In leaving the anchorage in Gregory Bay, attention must be paid to the tide, which continues to run to the eastward in the SECOND NARROW, three hours after it has commenced to set to the S. W. at the anchorage, (see p. 24).

Anchorage off the north end of Elizabeth Island.

With a leading wind through the Second Narrow, a ship will easily reach an anchorage off LAREDO BAY (p. 28;) but, if the tide fails upon emerging from it, she should seek for a berth in the Bay to the north of Elizabeth Island, (p. 26 and 27) as near to the island as possible, but to the westward of its N. E. end, to be out of the influence of the tide. The depth of water, however, will be the best guide.

Directions to pass round the south side of Elizabeth Island are given at p. 27; and as this part offers some dangers, the chart and the description should be carefully referred to.

Advisable to keep near the shore.

The only advice that seems wanting to improve the directions of the coast from this to PORT FAMINE is, with a south-westerly wind, to keep close to the weather shore, in order to benefit by the flaws down the vallies; but this must be done with caution, in con-

Heavy squalls.

sequence of the squalls off the high land, the violence of which, to a person unaccustomed to them, cannot be well imagined, (p. 29).

The fourth Section, from p. 47 to 52, gives an account of the anchorages between Port Famine and Cape Froward; of which the only convenient one for a ship is St. Nicholas Bay (p. 50), and to which, if defeated in passing round the Cape, a ship had better return; for it is easy to reach as well as to leave, and extremely convenient to stop at, to await an opportunity of proceeding.

Anchorages to the west of Cape Froward.

From CAPE FROWARD to the westward, unless favoured by a fair wind, it is necessary to persevere and take advantage of every opportunity of advancing step by step. There are several anchorages that a ship may take up, such as Snug Bay, off Woods Bay, near Cape Coventry, in Fortescue Bay, Elizabeth Bay, and York Roads. These are described between pages 55 and 58. To the

westward, in CROOKED REACH, the anchorages are not so good, and excepting Borja Bay (p. 64), none seem to offer much convenience. BORJA BAY, however, is well calculated to supply the deficiency, although for a square-rigged vessel there must be some difficulty in reaching it.

Also in Crooked Reach.

Borja Bay.

LONG REACH is both long and narrow, and ill supplied with anchorages for a ship; such as they are, Swallow Harbour, Playa Parda, Marian's Cove, and Half Port Bay, seem to be the best (p. 67, 70, and 72). In thick weather, although the channel is very narrow, yet one side is scarcely visible from the other, and the only advantage it has over other parts of the strait is the smoothness of the water. In SEA REACH there is a heavy rolling swell, with a short and deep sea, which renders it very difficult to beat to windward (p. 75).

Long Reach.

Heavy swell in Sea Reach.

Tamar Harbour (p. 78), Valentine Harbour (p. 81), Tuesday Cove (p. 82), and the Harbour of Mercy (p. 83), are the best anchorages; and the latter is particularly convenient to occupy, to await an opportunity of sailing out of the strait.

Anchorages in it.

In the entrance, the sea runs very heavy and irregularly during and after a gale; so that a ship should not leave her anchorage in the Harbour of Mercy, without a fair or a leading wind to get her quickly through it.

Entrance.

For small vessels, particularly if they be fore-and-aft rigged, many, if not all of the local difficulties vanish; and inlets which a ship dare not or can not approach, may be entered with safety, and anchorage easily obtained by them. A large ship will perhaps be better off in entering and leaving the strait where there is open space and frequently a heavy sea; but for the navigation of the strait, a small vessel has considerably the advantage. She has also the opportunity of passing through the Cockburn Channel should the wind be north-westerly, which will very much reduce the length of the passage into the Pacific.

No difficulty for small vessels.

Can pass through the Cockburn Channel.

One very great advantage to be derived from the passage through the Strait is, the opportunity of obtaining as much wood and water as can be required, without the least difficulty; another great advantage is, that by hauling the seine during the summer months, from January to May, at the mouth of the river or along the beaches in Port Famine, at the first quarter flood, a plentiful

Advantage of wooding and watering, and refreshments.

Fish.

supply of fish may be obtained. Excellent fish are also caught at the anchorage with the hook and line, at all seasons, early in the morning or late in the evening. Fish may also be obtained with the seine at any other place where there are rivers. Freshwater Bay and Port Gallant are equally productive. On the outer coast of Tierra del Fuego an excellent fish may be caught in the kelp.

Directions for passing through the Strait of Magalhaens, from the Pacific to the Atlantic.

Advantage to ships passing through the strait from West to East.

The advantage which a ship will derive from passing through the strait, from the Pacific to the Atlantic, for there must be some great one to induce the seaman to entangle his ship with the land when fair winds and an open sea are before him, is very great. After passing through the strait, the prevailing winds being westerly, and more frequently from the northward than from the southward of west, they are fair for his running up the coast; or if not, the ship is not liable to receive much injury from the sea, which is comparatively smooth; whereas, to a ship passing round the Horn, if the wind be north-west she must go to the eastward of the Falkland Islands, and be exposed to strong gales and a heavy beam sea, and hug the wind to make her northing. To a small vessel the advantage is incalculable; for, besides filling her hold with wood and water, she is enabled to escape the severe weather that so constantly reigns in the higher latitudes of the South Atlantic Ocean.

Ships going round the Horn must go to leeward of the Falkland Islands.

Directions.

Coming from the northward it will be advisable to keep an offing until the western entrance of the strait is well under the lee, to avoid being thrown upon the coast to the northward of Cape Victory, which is rugged and inhospitable, and, forming as it were a breakwater to the deep rolling swell of the ocean, is for some miles off fringed by a cross hollow sea almost amounting to a rippling.

Description of Cape Victory and the Evangelists.

The land of Cape Victory is high and rugged, and much broken; and if the weather be not very thick, will be seen long before the Evangelists, which are not visible above the horizon from a ship's deck, for more than four or five leagues.*

* From the Adventure's deck, the eye being thirteen feet above the water, they were seen on the horizon at the distance of fourteen miles.

Pass to the southward of them, and steer for Cape Pillar which makes like a high island. In calm weather do not pass too near to the cape, for the current sometimes sets out, and round the Cape to the southward; but with a strong wind get under the lee of it as soon as you please, and steer along the shore. In the night it will be advisable to keep close to the land of the south shore; and if a patent log be used, which no ship should be without, your distance will be correctly known. The course along shore, by compass, is E. ¼ S.; and if the weather be thick, by keeping sight of the south shore, there will be no difficulty in proceeding with safety.

Cape Pillar.

Course onwards from Cape Pillar.

The Adventure entered the strait on the 1st of April, 1830, at sunset; and after passing within half a mile of the islets off the Harbour of Mercy, steered E. ¼ S. *magnetic*, under close reefed topsails, braced by, the weather being so squally and thick that the land was frequently concealed from us; but, it being occasionally seen, the water being quite smooth, and the course steadily steered, with the patent log to mark the distance run, we proceeded without the least anxiety; although the night was dark and the squalls of wind and rain frequent and violent. When abreast of Cape Tamar, that projection was clearly distinguished, as was also the land of Cape Providence, which served to check the distance shewn by the the patent log, but both giving the same results proved that we had not been subjected to any current; whereas the account by the ship's log was very much in error, in consequence of the violence of the squalls and the long intervals of light winds, which rendered it impossible to keep a correct account of the distance. At daybreak we were between Cape Monday and the Gulf of Xaultegua; and at 8 o'clock we were abreast of Playa Parda, in which, after a calm day, the ship was anchored.

Sketch of the Adventure's passage through.

In the summer season there is no occasion to anchor any where, unless the weather be very tempestuous, for the nights are short and hardly dark enough to require it, unless as a precautionary measure, or for the purpose of procuring wood and water; the best place for which is Port Famine, where the beaches are strewed with abundance of logs of well seasoned wood,

Not necessary to anchor in the summer.

which is very superior to the green wood that must otherwise be used.

Currents in the strait.

Notwithstanding the Adventure experienced no current in the western part of the strait, there is generally a set to the eastward, which is more or less felt according to circumstances. The direction and strength of the currents are caused by the duration of the gales.

The chart will be a sufficient guide for vessels bound through from the westward as far as Laredo Bay; after which a few directions will be necessary. The land here should be kept close on board, to avoid the REEF off the south-west end of SANTA MAGDALENA. Being abreast of it, bear away, keeping the N. E. extremity of Elizabeth Island on the starboard bow, until you see SANTA MARTHA in one with, or a little to the southward of, the south trend of the Second Narrow (CAPE ST. VINCENT,) which is leading mark for the fair channel until you pass the spit of shoal soundings, which extends across to Santa Magdalena. There are also shoal soundings towards the south-west end of Elizabeth Island; at half a mile off we had 5 fathoms,—Cape St. Vincent being then the breadth of Santa Martha open to the northward of that island. Keeping the Cape just in sight to the northward of Santa Martha, steer on and pass round the low N. E. extremity of Elizabeth Island, off which are several tide eddies. The tide here sets across the channel. (See remarks upon the tide at p. 27.)

Direction for the navigation of the south side of Elizabeth Island.

Second Narrow.

Now steer for the SECOND NARROW, keeping Cape Gregory, which will be just discernible as the low projecting extreme of the north side of the Second Narrow, on the starboard bow, until you are three miles past Santa Martha; the course may then be directed for the Cape, opening it gradually on the larboard bow as you approach it, to avoid the shoal that extends off it.

Anchorage in Gregory Bay.

If you anchor in GREGORY BAY, which is advisable, in order to have the whole of the tide for running through the First Narrow, haul up and keep at a mile and a half from the shore. When the north extremity of the sandy land of the Cape is in a line with the west extreme of the high table land, you will be near the anchorage; then shorten sail, and when the green slope begins to

open, you will have 14 fathoms: you may then anchor or keep away to the N. E., and choose a convenient depth, taking care not to approach the shore, so as to bring Cape Gregory to the southward of S. by W. ¼ W. (by compass). The best berth is with the Cape bearing S. S. W. (See p. 23).

Course to First Narrow.

Hence, to the First Narrow the course by compass is due N.E. by E.* The land at the entrance, being low, will not at first be perceived, but on steering on you will first see some hummocky land, making like islands. These are hills on the eastern or Fuegian side of the Narrow. Soon afterwards a flat, low sand-hill will be seen to the northward, and this is at the S. W. extremity of Point Barranca. (see p. 23). On approaching the narrow at four miles off, keep a cliffy head, four or five miles within the east side of the narrow, open of the trend of Point Barranca, by which you will avoid the shoal that extends off the latter point (p. 22). You should not go into less depth than 6 fathoms. At most times of the tide there are long lines and patches of strong ripplings through which you must pass. The shoal is easily distinguished by the kelp.

Description of the Land on the S. W. end of the First Narrow.

Course to steer in passing the Narrow.

When the channel through the narrow bears by compass N. by E. ¼ E., steer through it; and that, or a N. N. E., course will carry you through. On each side, the bank extends off for some distance; but by keeping in mid-channel, there is no danger until the cliffy coast be passed, when reefs extend off either shore for some distance, particularly off Cape Orange. The N. N. E. course must be kept until the peak of Cape Orange bears South, and the northern Direction Hill (p. 20 and 22) W. S. W., or W. by S. ¼ S. by compass. Then steer E. N. E. for Cape Possession, taking care not to approach too near to the bank off Cape Orange, or the one on the north side of Possession Bay, for which the chart must be consulted.

The route not only advisable, but proper for a small vessel.

For a small vessel, the passage through the strait from west to east is not only easy, but to be strongly recommended as the best and safest route. Indeed, I think the passage would be quite as

* If from the Second Narrow, N. E. ¼ E. will be the compass course; but I should recommend a ship hauling up to the northward until abreast of Cape Gregory, and then to steer as above.

expeditious, and, perhaps, much safer to enter the Gulf of Trinidad, and pass down the Concepcion Strait, the Sarmiento or St. Estevan Channels, and Smyth's Channel, and enter the strait at Cape Tamar. In these channels northerly winds prevail, and there is no want of convenient and well-sheltered anchorages for the night, many of which have already been mentioned, and multitudes of others, and perhaps much better ones, might be found.

ADDENDA.

[While the preceding sheets were going through the press, the author had an opportunity of obtaining some additional matter from a MS. Journal, kept by the late Lieutenant Simpson,* who was a Midshipman with Commodore Byron in the Dolphin; and of extracting from his own manuscript some notes that will be found useful.]

Shoals off Cape Blanco.

Shoals off Cape Blanco. Mr. Simpson's Journal says, "Found various soundings, the shoalest water 7 fathoms on a bank. Then Cape Blanco bore S. W. by W ½ W. 2 leagues, and the southmost land in sight South. This shoal shows itself by a great rippling; we had 12 fathoms without it, close to the rippling, and were soon over it and steered directly in for the land. The water soon after deepened very fast; at one league from the shore we had 42 fathoms."

The shoals, therefore, that the Adventure passed, (p. 3.) are the same as the above. Hawkesworth (i. 13.) has doubtless made an erroneous extract from the Commodore's Journal, in describing them to be *four*, instead of two, leagues off the shore.

Position of Cape Blanco.

Cape Blanco. At page 4. is noticed a supposed error of the chart. The Spanish chart, from which I have laid down the cape, places it in latitude 47° 15′. Mr. Simpson's Journal describes it to be in latitude 47° 10′, which is only 2 miles short of what our observations made it.

Port Desire. I have recommended the river to be entered at young flood, (p. 5.), but Mr. Simpson thinks the last quarter

* Mr. Simpson died a few years back at the Royal Hospital of Plymouth, of which establishment he was one of the Lieutenants for many years. The Manuscript above referred to is now the property of Captain J. F. Newell, R. N. who obligingly communicated it to me during the printing off of my last sheet.

flood to be the best time. If the latter be adopted, I would advise that the ship should be anchored off the entrance during the low water, in order to see the banks and rocks uncovered; since they will not be visible after half tide.

Fresh Water at Port Desire.

The Journal also mentions that the Commodore found a small run of good FRESH WATER at about 2 miles S. W. of the Tower Rock. They filled five or six tons of it. A pole was erected near it, to point the spot out to future visitors.

Eddystone Rock, or the Bellaco.

EDDYSTONE. Byron saw this rock, but from his position of it, there seems to be little doubt that it is the Bellaco rock of Nodales. Mr. Simpson's journal says, " it is 5 leagues from the shore, and is covered at high water. It bears from Penguin Island S. S. W., a little westerly, distance 14 or 15 leagues; and it is in latitude 48' 36'. (The latitude of the Bellaco is 48° 30' 50", see p. 9.)

Tide at Santa Cruz.

SANTA CRUZ. At p. 17, eleven o'clock is given for the time of high water at full and change; but from a further consideration of Captain Stokes' journal, and of the tide tables kept on board the Beagle, it should rather be 10^h 15', it rises 33 feet.

At Port St. Julian.

PORT ST. JULIAN. High water at Port St. Julian takes place at full and change, at 10^h 34', and the tide rises 38 feet.

and at Port Desire.

Simpson's Journal notes the time of high water at Port Desire, at full and change, to be one o'clock, the tide to rise 21 feet, and the stream to run at 7 or 8 miles an hour.

Shoal off Cape Virgins.

The shoal soundings of 5 fathoms off Cape Virgins (p. 19), bear from the Cape, S. 35° E.

There is anchorage under Dungeness, with westerly winds. Wallis anchored in 10 fathoms gravel; Cape Virgins bearing N. by W. ½ W., and Dungeness S. by W., (Hawkesworth, i. 372); but these bearings, when laid down in the chart, do not appear to be correct. The Dolphin anchored at 4 miles off the Cape, bearing N. ½ E., and at 2 or 3 miles from the extremity of the Ness, bearing S. S. W. ½ W.

Reef off Cape Orange.

REEF OFF CAPE ORANGE. This reef extends off to the E. N. E. for a considerable distance. Byron struck upon it (Hawkesworth i, 42), as did also the Santa Casilda (Ult° Viage, Appendice). The Adeona, a sealing vessel, in 1828, also struck upon it and was left dry; and the Beagle, in going to her

assistance, crossed the tail of it at high water, occasionally striking the ground. Bougainville describes its position thus: "When the hillocks which I have named Quatre fils Aymond," (Asses Ears) "only offer two to sight in form of a gate, you are opposite the said rocks."

Shoals in Possession Bay and First Narrow.

SHOALS IN POSSESSION BAY and FIRST NARROW. The following extract from Mr. Simpson's Journal may be useful. "Passed over 6½ fathoms; the Asses Ears N. W. by W. ½ W. 3 leagues, and the north point of the First Narrow, W. by S. 5 or 6 miles."

"January 6. The ship grounded on a bank in 15 feet, and lay about 10 minutes, and then drove off into 9 and 10 fathoms. This shoal is in the mid channel to the First Narrow, and is off a great length and is steep to. When on it the Asses Ears bore N. W. ½ W. 6 or 7 miles, Entrance of the Narrow S. W. 2 leagues, and Point Possession N. E. 3 leagues. At 6 we anchored in 15 fathoms, the Asses Ears N. W. by W. 7 or 8 miles, the entrance of the Narrow S. W. by W. 2 or 3 leagues. The shoal, N. N. W. ½ mile. Anchored again in 6½ fathoms about 3½ leagues from the south side of the shoal; the Asses Ears, N. W. by W. 4 leagues, and the south point of the entrance of the First Narrow W. S. W. Sent the boats out sounding between the shoal and the south shore, and found a channel, but at low water the shoal shews itself in some places by a great rippling."

"Jan. 7. At 8 in the morning, weighed; little wind at W. S. W., steered S. E. by E., having Mr. John Simpson a-head of the ship, sounding. Steering this course half a mile we deepened the water to 13 fathoms, and then steered between East and E. N. E. along the south side of the shoal, and at 6 or 7 miles from the shore; the soundings being very regular, between 9 and 15 fathoms: but in hauling nearer we soon shoaled the water to 7 fathoms. The shoal is more than 2 leagues in length from east to west, and nearly 2 leagues in breadth between the shoal and the south shore. The boats had soundings on a bank in 6½ fathoms at low water, and deep water within it. At noon we hauled over for the north shore, being to the eastward of the bank, and soon deepened the water to 20 fathoms. Then Point Possession bore N. N. W. 4 or 5 leagues, and the Asses

Ears, W. N. W., 6 or 7 leagues. Cape Virgin Mary, N. E. ½ E. 7 leagues."

Point Anegada. POINT ANEGADA. Sarmiento's Point Anegada is certainly the Shoals off Cape Orange, for he says, "From Point Baxa, the coast of the south shore extends E. ¼ N. E. (Leste quarta al Nord-este)* 5½ leagues towards a very low point, which I called Point Anegada (drowned land), Sarmiento, p. 273. In printing page 22, I have considered the above point to be the Shoals off Point Delgada, which is manifestly erroneous.

Point Barranca. POINT BARRANCA bears from Cape Gregory, N. 48° ½ E. and is 19½ miles distant.

Shoal to the S. W. of Santa Magdalena. SHOAL off SANTA MAGDALENA. Simpson's Journal says there are 3 fathoms on it in many places; the least water found by us was 5 fathoms. See p. 27.

Cape Froward. CAPE FROWARD. Byron found the depth of water at less than a cable's length from the point 40 fathoms. Midway between St. Nicholas Bay and Port San Antonio, we had no bottom with 256 fathoms.

Snug Bay. SNUG BAY. At Byron's anchorage in Snug Bay, "Cape Froward bore E. ¼ S., 5 miles; the islet in the Bay, W. by S. ¼ mile; the river's mouth, N, W. by W. ¼ mile. Shoaled suddenly from 17 to 9 fathoms, but had no ground until near the Island." (Simpson's Journal.)

Elizabeth Bay. ELIZABETH BAY. Mr. Simpson describes the Dolphin's anchorage here in 10 fathoms. Rupert's Island bore S. by E., 2 or 3 miles; Passage Point S. E. by S. ¼ mile; the west part of the bay W. by N., 2 miles, and a reef of rocks about a cable's length from the shore N. W. by W., ¼ mile. The reef is quite covered at high water. Here the flood set to the eastward, and flowed at full and change until 12 o'clock.

Batchelor's River. BATCHELOR'S RIVER. "At ¼ of a mile to the eastward of Batchelor's River is a Shoal which has not more than 6 feet upon it at low water, and 14 feet at high water; it is about ½ a mile from the shore, and shews itself by the weeds upon it." (Simpson's Journal.)

Carlos III. Island. CARLOS III. ISLAND is the Island of LOUIS LE GRAND of Beauchesne, Anno 1699. In it are Dauphin Bay and Point Philipeaux. (Burney, iv. 376.)

* This bearing is erroneous; the bearing of the two points is nearly N. E.

Rocky Ledge off the Jerome Channel.

The Dolphin anchored on a knowl in 15 fathoms, 2 or 3 miles S. S. W. from the west entrance of the Jerome Channel and Cape Quod bearing W. S. W., 3 leagues; but after veering ⅞ of a cable the ship was in 45 fathoms. (Simpson's Journal.)

She also anchored at 5 or 6 miles from Cape Quod bearing W. S. W. and the south point of Despair Island (the largest of the Ortiz Isles off Borja Bay) just on with the pitch of the Cape, at ½ mile from the shore; the depth was 45 fathoms, and inside there was 75 fathoms. Here they found the tide to run eight hours to the eastward and four to the westward, at from 1½ to 2 knots. (Simpson's Journal.)

Rock to the East of Cape Quod.

At not a league to the eastward of CAPE QUOD is a rock which has not more than 9 feet upon it; but shews itself by the weeds growing upon it: it is a good distance from the north shore, and is in the fair way working to the westward round the Cape.

Reef to the West of Cape Upright.

CAPE UPRIGHT. Mr. Simpson notices a reef about 3 leagues to the west of Cape Upright, and at some distance from the shore: we did not observe it.

DIEGO RAMIREZ ISLANDS were discovered by the Nodales in the year 1619, and named by them after their head pilot.

TABLES

OF

LATITUDE AND LONGITUDE;

VARIATION OF THE

COMPASS AND TIDE.

TABLES

OF

LATITUDE AND LONGITUDE, VARIATION OF THE COMPASS, AND TIDE.

I.

COASTS OF BRAZIL, RIVER PLATA, AND EASTERN PATAGONIA.

The Latitudes to which the character ⊙ is prefixed, have resulted from Astronomical Observation. The Longitudes which have been determined by Chronometers, are designated by C.; and those by Lunar Distances by ⊙ D. Those without distinguishing marks are the result of Triangulation.

The Longitudes in the following Tables depend upon that of Villegagnon Island at Rio de Janeiro, which was found by 14 Chronometers from Plymouth to be 43° 05′ 03″ West of Greenwich.

Coast, &c.	Name of Place	Name of Particular Spot	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at F. & C. H. M.	Tide. Direction of Flood, & Rise of Tide
Coast of Brazil.	Santos	Arsenal	⊙ 23° 55′ 51″	C. 46° 16′ 33″	4° 22′		
	,,	Moela Lighthouse	⊙ 24 03 06	C. 46 12 20			
	Alcatrasse Island	Centre	⊙ 24 08 10	C. 45 89 15			
	Abrigo Island	Centre	⊙ 25 07 28	C. 47 52 51			
	Figuera Island	Centre	⊙ 25 21 29	C. 47 54 11			
	Paranagua	Fort on the Bar	⊙ 25 30 14	C. 48 17 10	5 44		
	,,	West Point of Cotinga	⊙ 25 29 50	C. 48 26 32	5 34		
	,,	Church of St^a. Antonina	⊙ 25 25 42	C. 48 39 52			
	St. Catherine	St^o. Cruz d'Anhatomirim	⊙ 27 25 35	C. 48 29 41	6 30		
	,,	City, President's House	⊙ 27 35 30				
	Cape St. Mary	Extremity	34 40 20	C. 54 05 58			
River Plata.	Gorriti Island	Well at N. E. end	⊙ 34 57 00	C. 54 53 38 ⊙ D 54 53 40	13 48		
	Monte Video	Rat Island, Flagstaff	⊙ 34 53 23	56 09 30	11 23		
	,,	Cathedral, Cupola	⊙ 34 54 37	56 07 35	12 07		
	,,	Light House on Mount	⊙ 34 53 21	56 11 04			
	Buenos Ayres	Cathedral	34 35 50	C. 58 17 53			
East Coast of Patagonia.	Port St. Elena	Observ^y. marked on Plan	⊙ 44 30 45	C. 65 17 25	19 10	4 0	17 feet
	Cape Two Bays	Hill at projecting Point	44 53 00				
	Cape Blanco	North Point	47 15 00				
	Port Desire	Ruins	⊙ 47 45 05	C. 65 51 45	19 42	12 10	18½ feet
	Penguin Island	Mount at North end	47 54 45	65 41 30			
	Sea Bear Bay	Sandy Beach at S. side	⊙ 47 56 49	C. 65 44 00	20 47	12 45	North 20 feet
	Shag Rock	Rock	48 08 25	65 52 56			
	Watchman's Cape	Monte Video	48 18 55	66 18 00			

TABLE I. *(continued.)*

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at F. & C.	Tide. Direction of Flood, & Rise of Tide
						H. M.	
East Coast of Patagonia.	Bellaco Rock ...	Rock.....	⊙ 48° 30′ 50″	C. 66° 09′ 25″			
	Port St. Julian..	Shag Island, in Harbour	⊙ 49 16 00	C. 67 38 02	22° 17′	10 30	Northward, rises 38 feet, (observed off the River's Mouth.)
	,,	Wood's Mount	49 14 00	67 43 34			
	,,	Cape Curioso	49 11 10	67 34 30			
	C. Franc. de Paulo	Extremity	49 41 18	67 34 30			
	Santa Cruz ...	Observatory opposite Sea Lion Island.....	⊙ 50 06 43	68 25 00 C. 68 22 42	20 54	10 15	38 feet
	,,	Mount Entrance.....	⊙ 50 08 30	68 19 10			
	,,	Station up the River ...	⊙ 49 57 30	68 52 55			
	,,	,, ,,	⊙ 50 07 30	69 08 00			
	Broken Cliff Peak	Brink	50 14 30	68 31 15		12 15	Northw.
	Lion Mount.....	Summit	50 20 00	68 49 30			
	Observation Mt.	Summit	⊙ 50 32 35	69 00 40			
	Coy Inlet.....	Height on South side of Entrance.....	⊙ 50 58 27	69 06 50 C. 69 05 17		9 30	
	,,	Station up the Inlet ...	51 06 30	69 24 10			
	Cape Sanches ...	Extremity	51 06 56	69 03 30			
	Tiger Mount ...	Summit	51 21 36	69 01 50 C. 69 03 28			
	C. Fairweather...	South extreme.....	51 32 05	68 55 15		9 0	N. W. 28 feet
	Gallegos River..	Observatory Mound ...	⊙ 51 33 21	68 57 50 C. 68 56 42	21 47	8 50	46 feet
	North Hill		51 49 56	69 24 30			
	Friars	Smallest & Northernm.	51 49 12	69 10 00			
	,,	Largest & Southernmost	51 50 08	69 09 00			
	Convents	Northern	51 52 09	69 18 40			
	,,	Southern	51 53 01	69 17 00			

TABLE II.

STRAIT OF MAGALHAENS,

INCLUDING

THE COCKBURN AND BARBARA CHANNELS, AND THE OTWAY AND SKYRING WATERS,

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at P. & C.	Tide. Direction of Flood, & Rise of Tide
East Entrance.	Cape Virgins ...	S. E. extreme.....	⊙ 52° 18′ 35″	68° 16′ 55″ C. 68 17 46	22° 30′	H. M.	Northw.
	Dungeness	Extremity	52 22 40	68 21 50			
	Mount Dinero...	Summit	52 18 25	68 30 00			
Possession Bay.	Cape Possession	Centre of Cliff.....	52 16 35	68 53 35			
	Mount Aymond	Summit	52 06 35	69 30 30			
	Cape Orange	Peak on the S. side of the entrance of the first Narrow ...	52 28 10	69 26 05		H. W. about 3 o, but the tide begins to set to the N. E. at noon.	36 feet
	C. Espiritu Santo	Summit 5 miles inland	52 42 30	68 40 51			
Eastern part (2d Narrow to Port Famine.)	Cape Gregory ...	Extremity	52 38 18	70 09 50			
	,,	Bush on summit of land	⊙ 52 38 03	C. 70 09 51	23 34		
	Elizabeth Island	North-east bluff.....	⊙ 52 49 18	C. 70 33 25			
	Oazy Harbour...	Entrance	52 42 20	70 31 06			
	Peckett's Har.	Beach opposite the anchorage outside	⊙ 52 46 45	70 40 31	23 49	12 0	
	Cape Negro.....	South-east extreme ...	⊙ 52 56 44	C. 70 45 30			
	Sandy Point.....	Extremity	53 09 00	70 49 31			
	Point St. Mary..	,,	⊙ 53 21 40	70 54 01 C. 70 53 26	23 26		
	Rocky Point.....	,,	53 35 18	70 51 58			
	Port Famine ...	Observatory.....	⊙ 53 38 12	C. ⊙ ☾ 70 54 01	23 30	12 0	South. 5or 6 feet
	,,	Point Santa Anna	53 37 55	70 51 19			
	Cape Monmouth	Extremity	53 23 30	70 24 01			
	Point Boqueron	,,	53 28 35	70 12 01			
	CapeSt. Valentyn	Summit at extreme ...	53 33 30	70 30 01			
	Nose Peak	Summit	53 32 30	70 01 36			
Admiralty Sound.	Port Cooke	Rivulet in the Bay.....	54 17 10	69 58 01			
	Latitude Point...	Extremity	⊙ 54 16 45	69 50 51			
	Bottom of Admiralty Sound	Summit of Mount Hope	54 26 30	68 59 11			

TABLE II. *(continued.)*

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at F. & C.	Tide. Direction of Flood, & Rise of Tide
						H. M.	
East Coast of Dawson Island.	Curious Peak ...	Summit	54° 19′ 35″	70° 08′ 31″			
	Mount Seymour	Summit	54 19 05	69 46 36			
	Ainsworth Harb.	Project. point on W. side	54 23 00	69 34 01			
	Parry Harbour...	Outer point on W. side	54 25 20	69 16 31			
	Card Point	Point.....	54 21 00	69 12 01			
	Willes Bay.....	Islet in Ph. Gidley Cove	⊙ 53 48 15	70 31 46			
	Cannon Point ...	Extremity	⊙ 54 03 47	70 25 31			
	Soapsuds Cove...	Rivulet	⊙ 54 16 28	70 13 46			
	Sharp Peak.....	Summit	54 06 50	70 23 01			
Gabriel Channel.	Cape Expectation	South Extremity, or trend at entrance of Gabriel Channel	54 19 00	70 15 21			
	Port Waterfall...	Port	54 20 20	69 19 01			
	Nar. of Gabriel C.	Midway	54 15 08	69 32 31			
	Cone Point	Summit	54 06 35	70 48 01			
Dawson Island.	Mount Graves..	South summit...	53 45 00	70 33 46			
	St. Peter's & St. Paul's Islet	Centre	53 42 10	70 42 01			
	Port San Antonio	Humming Bird Cove	⊙ 53 53 52 / 53 54 25	70 50 26			
	,,	S. W. pt. of North Island	53 54 03	70 51 51			
Coast from Pt. Famine to C. Froward.	Mount Tarn ...	Peak at North end.....	53 45 06	70 58 26			
	Cape San Isidro	Extremity	53 47 00	70 55 03	23° 30′	1 0	8 feet Southwd.
	C. Remarquable	Extremity	53 49 25	71 00 31			
	Nassau Island...	South-east point.....	53 50 23	71 00 56			
	St. Nicholas Bay	Islet in the centre	53 50 38	71 03 13		2 6	
Cape Froward to the Jeronic Channel, and North shore of Clarence Island.	Cape Froward ...	Summit of the Morro...	53 53 43	71 14 31		1 0	N. E.
	Cape Holland ...	S. point of Wood's Bay	53 48 33	71 35 41			
	Bougainville's Sugar Loaf...	Summit of Peak.....	53 57 32	71 24 13			
	Cascade Harb....	Small rock in Harbour	⊙ 53 57 48	71 27 46	24 18		
	Cordes Bay	Outer point West side...	53 42 55	71 53 08			
	Bell Bay	N. W. pt. Bradley Cove	⊙ 53 53 15	71 47 16			
	Cape Inglefield..	Islet off it.....	53 50 20	71 51 41			
	Cape Gallant ...	Extremity	⊙ 53 42 11	71 59 01	24 35		
	Port Gallant.....	Wigwam Point	⊙ 53 41 43	C. 71 56 57	24 04	9 3	5 or 6 feet

TABLE II. *(continued.)*

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at P. & C.	Tide. Direction of Flood, & Rise of Tide
						H. M.	
Cape Froward to Jerome Channel and North shore of Clarence Island	Charles Island...	Wallis's Mark	53° 43′ 57″	72° 02′ 00″			
	Rupert Island ...	Summit	53 42 00	72 08 00			
	Monmouth Isls.	Summit of largest island	53 39 40	72 08 39			
	Point Elizabeth	Passage Point Reef ...	53 37 00	72 08 41			
	Point York.....	Extremity	⊙ 53 32 35				
	Batchelor River.	Entrance	53 33 00	C. 72 17 11 72 15 41	24° 06′	1 46	
	Jerome Channel	Bluff extremity, or W. point of entrance	53 31 00	72 20 41			
Crooked Reach.	Cape Cross-tide.	Extremity	53 33 03	72 22 16		At Borja Bay.	
	El Morrion, or St. David's Head	Extremity	53 33 20	72 28 31		1 50	6 feet.
	Cape Quod	Extremity	53 32 10	72 29 41			
Long Reach.	Snowy Sound ...	Centre of Ulloa Island	53 31 30	72 36 13			
	Cape Notch.....	Extremity	53 25 00	72 45 11			
	Playa Parda Cove	Anchorage	53 18 30	72 56 00		1 6	
	Half-port Bay...	Centre	⊙ 53 11 36	C. 73 14 57			
	Cape Monday ...	Extremity	53 09 12	73 18 16			
Sea Reach.	St. Anne's Island	Centre	53 06 30	73 12 46			
	Cape Upright ...	Extremity, North trend	53 04 03	73 32 16			
	Cape Providence		52 59 00	73 31 00	23 22		
	Cape Tamar.....	Observatory, Tamar Bay	⊙ 52 55 06	C. 73 44 02	23 24	3 5	5 feet
	,,	Extremity of Cape.....	52 55 30	73 44 26			Eastwd.
	Beaufort Bay ...	Stragglers, Southernmost	52 48 03	73 46 00			
	Cape Phillip ...	Sholl's Bay	⊙ 52 44 05	C. 73 48 20			
	,,	Summit over the Cape	52 44 20	73 53 00			
	Cape Parker.....	Station near it.....	⊙ 52 41 49	C. 74 07 10			
	Point Felix	Station on its East side	⊙ 52 56 31				
	,,	Extremity	52 56 00	74 09 00			
	Valentine Harb.	Mount (see Plan)	52 55 00	74 15 00		2 0	
	Cape Cuevas	Extremity	⊙ 52 53 19	74 17 30			
	Cape Cortado ...	Extremity	52 49 37	74 22 56	23 40		
	Westminst. Hall	Eastern summit	52 37 18	74 20 26			
	Observation Mt.		⊙ 52 28 58	C. 74 32 18	25 09	2 0	
	Harbour of Mercy	Observation Islet	⊙ 52 44 57	C. 74 35 31	23 48	1 47 or 0 58	4 feet

TABLE II. *(continued.)*

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West	Variat. East.	Tide. H. W. at F. & C	Tide. Direction of Flood, & Rate of Tide
						H. M.	
Sea Reach.	Cape Pillar	Extremity	⊙52° 42′ 53″	C. 74° 37′ 41″ 74 39 31		1 0	
	Cape Victory ...	Extremity	⊙52 16 10	C. 74 50 55			
	Evangelists, or Isles of Direction	Sugar Loaf to South Eastward	52 24 18	75 02 56			Variable
Magdalen Sound.	Vernal	Pinnacle on summit ...	54 06 28	70 57 40			
	Anxious Point...	Extremity	54 06 50	70 53 26			
	Mount Boqueron	Centre pinnacle	54 10 40	70 56 00			
	Labyrinth Islands	Summit of Jane Island	54 19 10	70 57 36			
	Cape Turn	Extremity	54 24 08	71 04 00			
	Warping Cove...		54 24 08	C. 71 05 25	24°57′		
	Mount Sarmiento	N. E. peak (6800 feet)	54 27 00	70 47 30			
Cockburn Channel.	King Island.....	Summit	54 22 38	71 13 15			Westwd. 6 or 8 feet
	Prowse Islands	Station	54 22 13	71 20 57			
	Park Bay	Beach on isthmus	54 19 00	71 15 00	24 56	0 30	6 or 7 feet
	Bayne's Islands	Cove at the N. end of South-east island ...	54 18 15	71 35 50			
	Eliza Bay.....	Centre	54 17 45	71 37 00			
	Kirke Rocks.....	Body	54 22 30	71 42 30			
	Enderby Island	Centre	54 13 00	71 53 31			
Melville Sound.	Mount Skyring	Summit (3000 feet).....	54 24 44	72 07 40			
	Tom's Harbour	Cove near it.....	⊙54 24 23	C. 72 02 07 72 02 31	25 19		
	North Cove	Entrance	⊙54 24 27	C. 72 14 51 72 14 30			
	Fury Harbour...	West point	54 28 25	72 15 00			
	West Furies.....	Body	54 34 30	72 17 00			
	East Furies	Body	54 38 00	72 08 00			
	Cape Schomberg	Summit over extremity	54 38 48	72 02 46			
	Cape Kempe ...	Peaks over	54 23 30	72 26 46			
	Copper Kettle...	Summit	54 23 50	72 21 41			
Barbara Channel.	Bynoe Island ...	Centre	54 19 30	72 09 00			
	Mortimer Island	Summit	54 18 12	72 16 00			
	Hewett Bay.....	South point	54 15 30	72 16 51	24 0	0 30	6 or 7 feet Southwd.
	Brown Bay	Anchorage	54 12 20	72 16 00			
	Bell Mount	Summit	54 09 54	72 11 51			

TABLE II. *(continued.)*

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at F. & C.	Tide. Direction of Flood, & Rate of Tide
						H. M.	
Barbara Channel.	North Anchorage	,	⊙ 54° 09′ 25″	C. 72° 11′ 21″	24° 12′		
	Bedford Bay	Entrance	54 00 15	72 18 31	24 0	0 30	7 or 8 feet Southwd.
	Field Bay.....	Point Cairncross.....	53 51 06	72 16 31			
	Cayetano Peak	Summit	53 53 04	72 06 00			
	Shag Narrows...	North end.....	53 51 24	72 10 31		0 0*	
	Dighton Bay ...	Latitude Beach	⊙ 53 48 40	72 09 36			
	Point Elvira ...	Extremity	53 49 12	72 00 11			
	Cape Edgeworth	Extremity	53 47 03	72 05 16			
Jerome Channel.	Batchelor Peak	Northernmost	53 20 30	72 15 46			
	Three Island Bay	Centre	53 28 30	72 20 20			
	Real Cove.....	Centre	53 24 30	72 23 55			
Indian Sound.	Cutter Cove.....	Centre	53 21 45	72 23 20		4 0	
	False Corona ...	Smallest islet	⊙ 53 21 49	C. 72 28 55 72 26 00			
Otway Water.	Bennet Island...		⊙ 53 13 14	72 16 46			
	Fanny Bay	Gidley islet at S. entrance	53 11 00	72 08 30		5 0	
	Point Martin ...		⊙ 53 07 00	C. 72 00 51 71 58 00	23 58	5 0	
	Inglefield Island	North point	⊙ 53 04 20	C. 71 52 27 71 49 30	23 56	4 0	
	Shell-note Point	Extremity	⊙ 52 51 34	71 29 50			
	Point Hall	Extremity	52 49 45	71 22 10		4 0	N. W.
Fitz Roy Channel.	Donkin Cove ...	Spot marked on Plan...	⊙ 52 45 20	C. 71 21 36 71 19 55	23 40		
	Wigwam Cove	Do.	⊙ 52 39 30	C. 71 25 20 71 24 10	23 34	Sets to East until 1 30	
Skyring Water.	Euston opening	Centre	52 52 40	72 18 00			
	Dynevor Castle	Summit	52 34 39	72 28 40			

* The Tide commences to set to the Southward at Noon, at Full and Change.—See p. 45.

TABLE III.

THE WESTERN COAST, AND INTERIOR SOUNDS,

FROM

THE STRAIT OF MAGALHAENS TO THE NORTH EXTREMITY OF THE GULF OF PEÑAS.

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at P. & C.	Tide. Direction of Flood, & Time of Tide.
						H. M.	
Smyth Channel.	Fairway Isles ...		52° 43′ 25″	73° 44′ 25″			
	Deep Harbour...	South point of entrance	⊙52 41 10	73 44 40	23° 04′		
	Good's Bay	North point.....	⊙52 34 16	73 42 48	23 20	0 30	6 or 7 feet
	Oake Bay.....	Larch Island	⊙52 25 38	73 43 25			
	Otter Bay.....	Anchorage	52 23 50	73 40 15			
	Summer Isles ...	Summit of larger island	52 20 25	73 39 20			
	Fortune Bay.....	Rivulet.....	52 15 48	73 41 25	23 40	0 50	7 or 8 feet
	Point Palmer ...	Extremity	52 13 38	73 38 40			
	Isthmus Bay ...	Centre	52 10 30	73 36 40			
	Welcome Bay...	Entrance of Cove	52 09 15	73 43 03	23 40	0 50	7 or 8 feet (Flood sets to the Northward.)
	Point St. Julian	Extremity	52 00 50	73 45 40			
	Island Bay ...	Island at South side of port	51 59 05	73 49 00			
	Hamper Bay ...	Anchorage	51 54 08	73 53 15			
	Rocky Cove.....	N. W. point	⊙51 50 04	74 05 20			
	Cape Cheer	Summit	51 41 35	74 15 00			
Lord Nelson Strait.	Narrow Creek...		⊙51 47 22	74 09 30	24 09		
	Mount Trafalgar	Summit	51 48 10	74 21 00			
	Point West	Extremity	51 31 45	74 04 57			
	Cape Kendall ...	Extremity	51 27 15	74 06 20			
	Relief Harbour	Rock on West side.....	⊙51 26 27	74 07 00	24 40		
St. Estevan Channel.	Escape Bay	Anchorage	51 22 00	74 12 00			Northwd.
	Mount Trigo ...	Summit	51 15 04	74 12 00			
	Cape Donaldson	Extremity	51 06 10	74 16 40			
	Rejoice Harbour	North point of entrance	51 02 12	74 16 00			
	Anchor Bay.....	North point of entrance	50 55 00	74 16 40			
	Latitude Cove...		⊙50 50 54	74 16 00			
	Guia Narrows	North extremity in mid channel	50 43 00	74 23 10		2 8	Southwd.

TABLE III. *(continued.)*

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at F. & C	Tide. Direction of Flood, & Rise of Tide
						H. M.	
Sarmiento Channel.	Bonduca Island	Centre	50° 55′ 00″	74° 09′ 40″			
	Puerto Bueno	N. pt. of Schooner Cove	⊙ 50 58 35	74 07 10	21° 00′	1 40	Flood sets to the South.
	Blanche Passage	Entrance	51 13 40	73 59 00			
	Port San Mateo		51 23 50	74 00 35			
	Cape St. Vincent	Northern trend	51 30 00	73 58 35			
	Point Balthazar	Extremity	51 38 05	73 56 55			
	Cape San Bartholomew		51 46 05	73 51 15			
	Staines Peninsula	Isthmus	51 40 35	73 37 00			
	Cape Flamstead	Rock off the Extremity	51 46 35	73 48 00			
Union Sound.	Shingle Road	Anchorage	51 51 30	73 42 30			
	Point Maskelyne	Extremity	51 55 00	73 42 30			
	Brinkley Island	Summit	51 58 45	73 39 10			
	Peñas de Altura		52 06 05	73 36 55			
	Crater Cove		52 04 10	73 27 20			
	Stony Bay	West point	⊙ 52 06 03	73 23 58			
	Cape Año Nuevo	North Extremity	52 07 30	73 27 40			
Interior Sounds.	Mount Burney	Centre peak	52 19 42	73 22 00			
	Ancon Sin Salids	Summit of large island opposite to Cape Earnest	52 12 20	73 15 15			
	Cape Earnest	Extremity	52 10 52	73 14 30			
	Leeward Bay	Islets within anchorage	52 11 00	73 10 30			
	Whale Boat Bay	Beach	⊙ 52 05 32	73 08 35			
	Cape Retford	Extremity	52 04 38	73 02 20			
	Point Return	,, ,,	⊙ 52 03 39	72 58 50			
	Virginia Island	S. E. point	⊙ 52 06 16	72 58 00			
	Easter Bay	Beach	⊙ 51 53 10	C. 72 53 16			
	Canal of the Mountains	Bottom	51 34 00	73 23 00			
	Last Hope Inlet	,, ,,	51 25 38	73 09 48			
	Focus Island	Summit (centre)	51 53 23	72 44 15			
	Obstruction Sd.	Bottom	52 29 00	72 53 35			
	,,	S. E. bight, or the nearest part to Skyring Water	52 22 35	72 29 40			
	Point San Juan	S. W. extremity	50 39 52	74 29 28			

TABLE III. *(continued.)*

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at F & C.	Tide. Direction of Flood, & Rise of Tide
						H. M.	
Conception Strait.	Guard Bay	Anchorage	50° 34′ 10″	C. 74° 32′ 57″			
	Innocent Island	Summit at North end...	50 31 55	74 43 00			
	Tapering Point	Extremity	50 28 55	74 38 30			
	Point Hocio de Cayman	,, ,,	50 24 30	74 48 35			
	Walker Bay ...	Beach	50 21 15	74 48 00			
	Molyneux Sound	Rock to N. of Point Michael	⊙ 50 16 48	74 44 45			
	Portland Bay	Centre of island fronting the anchorage	50 14 42	74 36 48			
	Expectation Bay	Anchorage	50 25 08	74 13 15			
	Tom's Bay	Beach near anchorage ..	50 11 00	74 41 30			
	Open Bay.....	Summit of island off...	50 07 00	74 31 00			
	Pt. Brazo Ancho	Extremity	50 08 35	74 37 25			
Gulf of Trinidad.	Red Bill Island	Summit	⊙ 50 05 30	74 44 15			
	Windward Bay	Beach	50 03 12	74 38 00			
	Double Peak Mt.	Eastern peak	49 57 35	74 36 00			
	Cathedral Mount	Summit	49 46 03	74 40 50			
	Neesham Bay...	Beach	⊙ 49 53 54	C. 74 55 57			
	Easter Peak.....	Summit	50 00 15	75 09 35			
	Port Henry	Observatory.....	⊙ 50 00 18	C. 75 15 11	20° 50′	Noon.	5 feet
	Seal Rocks	Body.....	49 54 48	75 14 02			
	Cape Three Points	Pillar Rock at the extremity	50 02 00	75 19 30			
	Cape Primero...	Extremity	49 50 04	75 32 07	20 58		
Wide Channel.	Mount Corso ...	Summit	49 45 02	75 28 55			
	Small-craft Bight	.....	50 01 20	74 27 00			
	Sandy Bay	East point	50 45 25	74 13 10			
	Saumarez Island	Bold head	49 32 13	74 03 20			
	Fury Cove	Head.....	⊙ 49 31 46	74 00 00		1 15	W.S.W.
Sir Geo. Eyre Sd.	Falcon Inlet.....	Cape Wellesley. extrem.	49 28 15	73 51 30			
	Bottom of the Sd.	.....	48 53 50	73 40 00			
Mesier Channel.	Rocky Bight ...	West point	49 25 35	74 10 40			
	Level Bay	Outer point, N. side...	49 07 35	74 11 30			
	English Narrows	South end.....	49 06 00	74 13 20	12 45		
	,,	North end	48 55 30	74 13 38			

TABLE III. *(continued.)*

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at F. & C.	Tide. Direction of Flood, & Rise of Tide
						H. M.	
Mesier Channel.	Halt Bay		⊙ 48° 53′ 50″	74° 13′ 10″		12 30	S. S. E.
	Iceberg Sound	Station Rock, on the N. side of entrance	⊙ 48 39 23	74 11 20			
	,,	Bottom	48 47 00	74 10 10			
	White Kelp Cove	Rock off the entrance	⊙ 48 30 46	74 15 35			
	Middle Island	North point	48 27 35	74 20 50		12 0	Northwd.
	Waterfall Bay	Bottom	48 17 00	74 22 00			N. by W.
	Island Harbour	West point	48 06 25	74 28 38			
	Millar Island	South extreme	48 03 20	74 35 30			
	,,	Millar's Monument, North extreme	47 55 12	74 41 50			
	Campana Island	Summit at South end	47 45 10	74 37 30			
	Cape Roman	Extremity	47 44 37	74 52 45			
Guaianeco Islands.	Ayautau Island	Summit on the largest	47 34 22	74 40 30			
	Wager Island	Easternmost point	47 41 05	74 55 25			
	,,	Supposed position of the Wager's wreck	47 39 40	75 06 30			
	Speedwell Bay	North beach	⊙ 47 40 17	C. 75 08 34 75 10 20			
	Rundle Pass	South end	47 45 30	75 05 45			
	Islet—the most Northern of the group	Summit	47 38 30	75 14 25			
	Good Harbour	Isthmus at the bottom	47 45 00	75 20 50			
	Byron Island	Most western point	47 44 50	75 24 32			
Gulf of Peñas.	Channel's Mouth	Body of rocks off the South entrance	47 30 20	74 33 20			
	,,	Hazard Isles, centre and westernmost	47 29 30	74 24 50			
	,,	East side of northern islet	⊙ 47 28 56	C. 74 24 13			
	,,	Bottom of east arm	47 35 12	73 53 52			
	,,	Bottom of south arm	47 46 10	74 09 20			
	Xavier Island	Ignacio Bay (beach)	⊙ 47 10 28	C. 74 25 49	19° 50′		
	,,	Xavier Bay (Lindsey Pt.	47 05 00	74 16 40			
	Jesuit Sound	North point of entrance, or head of False Harbour	47 07 15	74 12 30			
	Kelly Harbour	North point of entrance	⊙ 46 58 54	C. 74 05 41			
	Cirujano Islet	North-east point	46 51 15	74 21 50			
	San Tadeo River	Sand Hills on East side of entrance	46 47 40	74 15 50		11 45	(Head of St. Quentin Gulf.) 6 feet
	Purcell Island	Summit	46 55 30	74 39 55			

TABLE III. *(continued.)*

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat East.	Tide. H. W. at F. & C.	Tide. Direction of Flood, & Rise of Tide
						H. M.	
Gulf of Peñas.	Isthmus	Centre	46° 50′ 20″	74° 41′ 35″			
	Port Otway	Observatory.....	⊙ 46 49 31	C. 75 19 00	20° 32′	11 37	6 feet
	Sugar Loaf	Summit	46 42 40	75 15 00			
	Dome of St. Paul's	,, ,,	46 36 56	75 13 20			
Peninsula of Tres Montes	Pt. Mitford Rees	Extremity	46 43 08	75 40 55			
	Cape Raper.....	,, ,,	46 48 20	75 39 35			
	Cape Tres Montes	,, ,,	46 58 57	75 27 30			
Coast of Wellington and Campana Islands.	Bynoe Island ...	Entrance of Fallos Ch.	47 57 55	75 23 46			
	Break Sea Island	Northernmost point ...	48 01 00	75 29 15			
	Port Santa Barbara	Observation Inlet	⊙ 48 02 15	C. 75 29 12	19 10	11 45	3 to 4 feet at Neaps.
	Dundee Rock ...	Summit	48 06 16	75 42 00			
	Cape Dyer	Extremity	48 05 55	75 34 35			
	Sisters	Centre peak.....	48 37 40	75 28 10			
	Parallel Peak ...	Summit	48 45 40	75 29 35			
	Cape Montague	,, ,,	49 07 20	75 33 40			
Coast of Madre de Dios.	April Peak	,, ,,	50 10 52	75 17 35			
	Cape Santiago..	,, ,,	50 42 02	75 24 00			
	Cape St. Lucia...	,, ,,	51 30 00	75 25 00			
	Cape Isabel.....		51 51 40	75 09 30			

TABLE IV.

OUTER, OR SEA COAST, OF TIERRA DEL FUEGO.

In order to adapt the longitudes of the places mentioned in this Table to the meridians of Port Famine and St. Martin's Cove, at Cape Horn, the following corrections have been made to Captain Fitz Roy's chronometrical results, viz :—

Townshend Harbour, Stewart Harbour, Doris Cove, March Harbour, Good Success Bay } have been placed { 0′ 11″ / 0 23 / 0 33 / 1 6 / 2 0 } to the Eastward of Captain Fitz Roy's chronometrical deductions.

By Captain Fitz Roy's observations St. Martin's Cove would be in long. 67° 31′ 18″, which is 2′ 15″ to the Westward of the mean of upwards of thirty chronometrical results from Monte Video. The difference has therefore been equally divided between North Cove and St. Martin's Cove; the longitude of the latter being taken at 67° 29′ 03″, and of Port Famine at 70° 54′.

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at F. & C.	Tide. Direction of Flood, & Rate of Tide
						H. M.	
Sea Coast of Tierra del Fuego.	Dislocation Harb.	Near the projecting point	⊙52° 54′ 13″	C. 74° 33′ 03″	23°53′	1 40	4
	Week Islands ...	Saturday Harbour	53 11 26	74 14 36	24 0	2 0	4
	Latitude Bay ...	West point of entrance	⊙53 18 40	C. 74 12 6	23 56	2 5	4
	Deepwater Sound		⊙53 34 58	C. 73 34 46			
	Laura Basin.....	North point	⊙54 06 58	C. 73 15 20		1 0	4
	Noir Roads	Penguin Point.....	54 28 15	72 56 00	24 40	2 30	4
	Cape Noir	Extremity	54 30 00	73 01 30	25 00		
	Tower Rock.....	South Easternmost.....	54 37 05	72 59 00			
	Cape Gloucester	Summit	54 30 00	73 01 30			
	Fury Harbour ...	Island in the entrance	54 28 00	72 14 00	24 30	2 30	4
	Isabella Sound		⊙54 13 00				
	North Cove.....	.....	⊙54 24 26	C. 72 14 46	24 30	2 30	4
	Mount Skyring	Summit	54 24 44	72 07 40			
	St. Paul's.....	South-east Peak	54 39 48	71 56 50			
	Townshend Harb.	Islet on N. side of Harb.	⊙54 42 15	C. 71 51 49	24 34	1 30	4
	Cape Castlereagh	Extremity	54 56 40	71 25 00			
	Stewart Harbour	E. side of Shelter Island	⊙54 54 24	71 25 05	24 14	2 50	4
	Doris Cove	East Point entrance ...	⊙54 58 46	71 05 35	24 16	3 0	4
	Cape Alikhoolip	Extremity	55 11 55	70 47 50			
	Yorkminster ...	Summit.....	55 24 30	70 01 50			
	March Harbour	Entrance of the Basin...	⊙55 22 35	69 53 57	21 4	3 10	4
	Adventure Cove	Rocky Pt. N. end of Beach	⊙55 21 12	69 50 00	24 40	3 10	4

TABLE IV. *(continued.)*

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H W. at F. & C.	Tide. Direction of Flood, & Rise of Tide
Sea Coast of Tierra del Fuego.	Ildefonsos	.....					
	Henderson Island	.....	⊙55° 35′ 46″	68° 58′ 00″	(Mount Beaufoy)		
	,,	.....	⊙55 35 54				
	Orange Bay.....	Middle of Bay.....	⊙55 30 50	C. 68 00 23	23° 56′	H. M. 3 30	4
	St. Martin's Cove	Head of the Cove	⊙55 51 19	C. 67 29 03			
	Cape Horn	Summit	⊙55 58 41	67 10 53			
	Lennox Harbour	Point at N. end of Beach	⊙55 17 04	66 44 03	23 40	4 40	8
	Evouts Island ...	Centre	55 33 00	66 40 03			
	Diego Ramirez	S. or Boat Island, summit	56 26 35	68 36 20	24 0		
	,,	Northernmost Rock ...	56 22 25	68 36 46			
	Barnevelt Islands	Centre	⊙55 48 54	66 39 48			
	Spaniards' Harb.	Point Kinnaird	54 57 05	65 42 54			
	Good Success Bay	S. side, near Sandy Beach	⊙54 48 02	C. 65 09 18	22 42	4 15	9
	Cape San Diego	Extremity	54 40 35	65 01 53			

TABLE V.

COAST OF CHILE.

Coast, &c.	Name of Place.	Name of Particular Spot.	Latitude South.	Longitude West.	Variat. East.	Tide. H. W. at P. & C.	Tide. Direction of Flood, & Rise of Tide
						H. M.	
Coast of Chile.	SanCarlosdeChiloe	Sandy Point.....	⊙41° 51′ 34″	C. 73° 50′ 25″	18° 33′	11 15	6
	Talcahuano	Fort Galvez.....	⊙36 41 58	C. 73 03 05	16 47		
	Valparaiso	Cerro Alegre	⊙33 01 58	C. 71 34 12	15 18		
	Juan Fernandez	Fort San Juan, in Cumberland Bay ...	⊙33 37 36	C. 78 46 04	17 13		

TABLE

OF

OBSERVED OR ESTIMATED HEIGHTS OF MOUNTAINS

AND

PARTICULAR PARTS OF THE SEA COAST.

Ang. *denotes the height to have been ascertained by Angular Measurement;*
Bar. *by Barometer; and* Est. *by Estimation.*

NORTH ATLANTIC OCEAN.

CAPE DE VERD ISLANDS.

	Feet.	
Peak at the N. W. end of San Antonio	7086	Ang.
Pico Antonio, on St. Jago	4725	Ang.
Pico of Fuego	8815	Ang.

SOUTH ATLANTIC OCEAN.

COAST OF BRAZIL.

Corcovado, at Rio de Janeiro	2330	Bar. 5 Obs.
Sugar Loaf, do.	1275	Ang.
Cubatoa, at Santos (Telegraph House)	2502	Bar. 5 Obs.
City of San Paulo (Base of the Cathedral)	2444	Bar. 16 Obs

EAST COAST OF PATAGONIA.

Cliffy Coast, near Port St. Julian	300 to 330	Est.
Mount Entrance (Santa Cruz)	356	Ang.
Cape Fairweather and the Cliffs to the Northward	300	Est.
Cape Virgins and the Cliffs to the Northward	300	Est

STRAIT OF MAGALHAENS.

	Feet	
Cape Possession	300	Est.
Table Mountain behind Cape Gregory	1500 to 2000	Est.
Point Santa Anna (Port Famine)	104	Ang.
Mount St. Philip do.	1308	Ang.
Mount Graves, North Summit (Dawson Island)	1315	Ang.
do. South do. do.	1498	Ang.
Lomas Range, the highest part over Port San Antonio	2963	Ang.
Mount Tarn (Peak at the N. E. end)	2602 2852	Bar. 4 Obs. Ang.
Mount Buckland, Gabriel Channel	4000	Est.
Mount Boqueron, (entrance of Magdalen Sound)	3000	Est.
Mount Sarmiento, (bottom of do.)	6800	Ang.
Pyramid Hill, (do. do.)	2500	Ang.
Cape Froward (Land behind the Morro)	2500	Est.
Cape Holland	1800	Est.
Mount Pond	2500	Est.
Mount Cross, Port Gallant	2290 2264	Bar. Ang. 3 Obs.
Average height of the Land of Sea Reach	1000 to 2500	Est.

OUTER COAST OF TIERRA DEL FUEGO

Kater's Peak, on Hermite Island	1742	Bar. 4 Obs.
Bell Mount, near Strait le Maire	4000	Est.
Noir Island	600	Est.

SOUTH PACIFIC OCEAN.

WESTERN COAST OF PATAGONIA.

Mount Burney	4800	Ang.
Cape Three Points	2000	Est.
Mountain within Kelly Sound	1540	Ang.
Sugar Loaf (Marine Islands, in Holloway Sound)	1836	Ang.
Dome of St. Paul's (do. do.)	2284	Ang.
Highest peak of Juan Fernandez. (The *Yungue*, or Anvil)	3005	Ang.

BY AUTHORITY:

J. HARTNELL, FLEET STREET.

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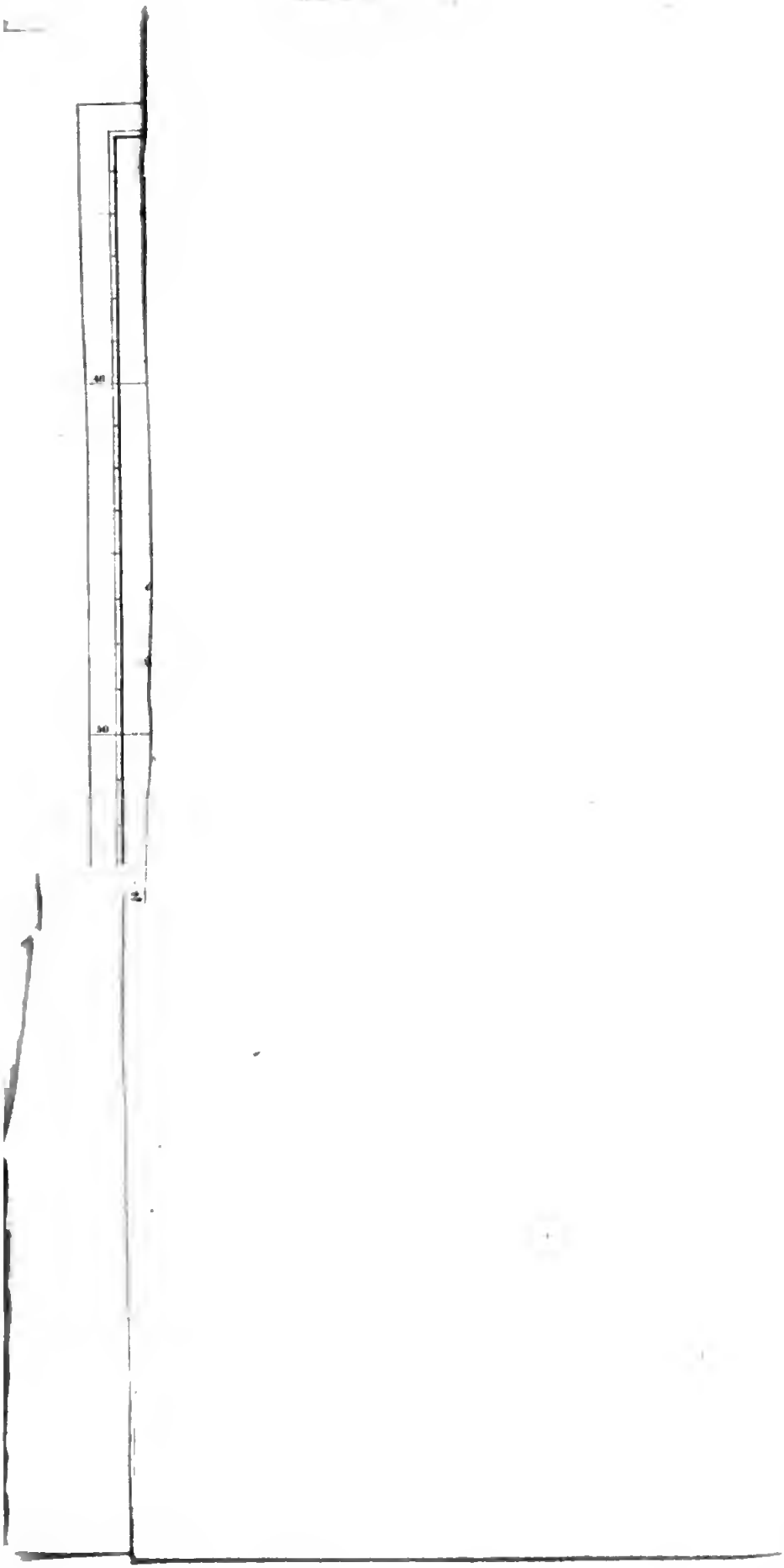
A.

B.

T.




BIBLIOTECA NAZIONALE VITTORIO EMANUELE
NAPOLI

Capt. W. H. Smyth R.N.

from the Author

Regards

Some Observations upon the Geography of the Southern Extremity of South America, Tierra del Fuego, and the Strait of Magalhaens; made during the late Survey of those coasts in his Majesty's ships Adventure and Beagle, between the years 1826 and 1830. By Captain Phillip Parker King, F.R.S., &c., and Commander of the Expedition. Read before the Geographical Society of London 25th April and 9th May, 1831. *With a Map.*

CONSIDERING the vast extent of the sea-coast of the southern extremity of America, it is not a little surprising that it should have been so frequently passed by during the last century without having been more explored. Within the last eight or ten years, however, it has been very much resorted to by English and American vessels in the seal trade, and to the observing portion of their enterprising crews many of its intricacies are well known; but as the knowledge they have derived from their experience has only in one instance, that of Mr. Weddel's voyage, been published to the world, our charts cannot be said to have been much improved for the last fifty years.

The eastern coast of Patagonia, by which name the country

between the River Plate and the Strait of Magalhaens* is known, was coasted, as well as the north-eastern side of Tierra del Fuego, by Malespina; and the charts of his voyage not only vie with any contemporaneous production for accuracy and detail, but are even now quite sufficient for the general purposes of navigation.

The Strait of Magalhaens has been explored by several navigators; but, among the numerous plans of it extant, those of Sir John Narborough and Cordova are the most correct. The first is particularly noticed in the late Admiral Burney's very useful work, and the result of the last has been published in the Spanish language, and is entitled '*Ultimo Viage al Estrecho de Magallanes.*' A second voyage was also made by Cordova to the Strait, the proceedings of which form an appendix to the above work. It is furnished with a good general chart of the coast, another of the Strait, and many plans of the anchorages within it. Byron, Wallis, Carteret, and Bougainville had already made considerable additions to Narborough's plan, from which a chart had been compiled that answered all the purposes of general geographical information, and might even have been sufficient for navigation: for the latter purpose, however, Cordova's chart was much superior, but being published in Spain only, and its existence little known in England, I found great difficulty in procuring a copy before I sailed for my own use.

The southern coast of Tierra del Fuego between Cape Good Success, the southern limit of Strait le Maire, and Cape Pillar at the western end of the Strait of Magalhaens, were very little known. Captain Cook's voyage affords several useful notices of the coast between Cape Deseado and Christmas Sound, and the Dutch fleet under Hermite partially explored the neighbourhood of Cape Horn: a confused chart of this coast, however, was the best that could be put together; and although Weddel has more recently published a good account of the harbours and anchorages near Cape Horn and New Year's Sound, yet little available benefit was derived from it, because these different navigators having confined their examinations to small portions of the coast, it was difficult to connect their respective plans, even on so small a scale as that of the general chart.

The western coast of South America, which is very intricate, extending from Cape Victory (the north-west entrance of the

* There has existed much difference of opinion as to the correct mode of spelling the name of this celebrated navigator. The French and English usually write it Magellan, and the Spaniards Magallànes; but by the Portuguese, and he was a native of Portugal, it is universally written Magalhaens. Admiral Burney and Mr. Dalrymple spell it Magalhanes, which mode I have elsewhere adopted, but I have since convinced myself of the propriety of following the Portuguese orthography for a name which to this day is very common both in Portugal and Brazil.

Strait of Magalhaens) to the island of Chiloe, may be said to have been wholly unknown; for since the time of Sarmiento de Gamboa nothing in the least descriptive of it had been published, with the exception of the brief notices of two missionary voyages in piraguas, from Chiloe to the Guiateca andGuaianeco islands.

Every person conversant with South American geography must be acquainted with the voyage of Sarmiento. From the determined perseverance through difficulties of no ordinary nature shown by this excellent and skilful navigator, we are possessed of the details of a voyage down the western coast and through the Strait of Magalhaens that has never been surpassed. His journal has furnished us with the description of a coast more difficult and dangerous to explore than any that could readily be selected; for it was at that time perfectly unknown, and is exposed to a climate of perpetual storms and rain: yet the account is written with such minute care and correctness, that we have been enabled to detect upon our charts almost every place described in the Gulf of Trinidad, and the channels to the south of it, particularly their termination at his *Ancon sin Salida.*

It would be irrelevant to enter here into the history of Sarmiento's voyage, or indeed of any other connected with the coasts which I am about to describe. Modern surveys are made so much more in detail than they were formerly, that little use can be derived from the charts and plans that have been hitherto formed; but the accounts of the voyages connected with them are replete with interesting and useful matter, and much amusement as well as information may be derived from their perusal, particularly Sir John Narborough's journal, and Byron's romantic and pathetic narrative of the loss of the Wager.

The Cordillera of the Andes, which is known to extend from the northern part of the continent almost to its southern extremity without a break, gradually decreases in elevation as it reaches the higher southern latitudes. In the neighbourhood of Quito, Chimborazo and Pinchincha rear their summits to the height of nearly twenty-two thousand feet above the level of the sea: near Santiago de Chile the highest land is fourteen thousand feet; farther south, at Concepcion, it is still lower; and at Chiloe there are few parts of the range exceeding six thousand feet. Between Chiloe and the Strait of Magalhaens the average height may be taken at three thousand feet; but there are some mountains which may be between five and six thousand feet high.

By a reference to the chart it will be seen that about the parallel of 40° the coast begins to assume, and retains to its furthest extremity, a very different appearance from that which it exhibits to the northward, where the sea, which is kept at a distance from the Cordillera by a belt of comparatively low land for

continuous intervals of some hundred miles, washes a long unbroken shore, affording neither shelter for vessels nor landing for boats; but, to the southward of that parallel, its waters reach to the very base of the great chain of the Andes, and, flowing as it were into the deep ravines that wind through its ramifications, form numerous channels, sounds, and gulfs, and, in many instances, insulate large portions of land. In fact the whole of this space is fronted by large islands and extensive archipelagos, of which the most conspicuous are the great island of Chiloe, Wellington Island, the Archipelago of Madre de Dios, Hanover Island, and Queen Adelaide's Archipelago. The last forms the western entrance of the strait on its north side. The land of Tres Montes, however, is an exception: it is a peninsula, and is the only part of the continent within the above limits that is exposed to the ocean's swell. It forms the northern part of the Gulf of Peñas, and is joined to the main by the narrow isthmus of Ofqui, over which the Indians, in travelling along the coast, carry their canoes to avoid the extreme danger of passing round the peninsula. It was here that Byron and his shipwrecked companions crossed over with their Indian guides: but it is a route that is not much frequented; for this part of the coast is very thinly inhabited, and the trouble of pulling to pieces and reconstructing the canoes *, an operation absolutely necessary to be adopted, from the difficulty of the ascent and descent of the mountain, is so great that I imagine it is only performed on occasions of great importance. In this way the piraguas which conveyed the missionary voyagers to the Guaianeco Islands were transported over the isthmus; the particulars of which are fully detailed in their journals †.

The river San Tadeo, although of small size, being navigable only for eleven miles, is the largest of any of the rivers of the coast to the south of the archipelago of Chiloe, and therefore merits a particular description. At seven miles from the mouth it is fed by two streams or torrents, the currents of which are so strong that a fast pulling boat can hardly make way against it. One of these streams takes its rise in a mountainous range over which it is probable the communicating road passes; and the other is the drain of an extensive glacier or plain of ice of fifteen miles in extent. The river falls into the Gulf of St. Estevan over a shallow bar upon which there is scarcely two feet water, and at low tide is probably dry.

* During our examination of this part, our boats asceuded the river San Tadeo and endeavoured in vain to find any traces of the road; an almost impenetrable jungle of reeds and underwood lined the banks of the river, and time was too valuable to admit of further delay in search of an object comparatively of minor importance.

† Agueros, Descripcion Historial de la Provincia y Archipielago de Chiloe. 1791. p. 229.

At the head of St. Estevan's Gulf is St. Quentin's Sound; both were examined and found to afford excellent anchorage, and they are both of easy access should a ship, passing up the coast, find herself upon a lee shore and not able to weather the land, as was the case with the ill-fated Wager*.

The Guaianeco islands form the southern head of the Gulf of Peñas; then follows Wellington Island, separated from the main by the Mesier Channel, which had not been previously explored, its mouth only being laid down in the charts compiled from the information of Machado, a pilot who was sent in 1769 by the viceroy of Peru to examine the coast from Chiloe to the Strait of Magalhaens†. This channel is also noticed in one of the two missionary voyages above mentioned; but the object of these expeditions being for the purpose of converting the Indians to Christianity‡, and not for the extension of geographical knowledge, little information of that nature could be obtained from their journal: the entrance of the Mesier, however, is described by them; and on one occasion they were obliged to take refuge in it for fifteen days‖. With this exception I cannot find that it has ever been entered before our visit.

The length of the channel is one hundred and sixty miles, and it joins the Concepcion Strait behind the Madre de Dios archipelago, at the Brazo Ancho of Sarmiento. Lieutenant Skyring, who superintended this particular part of the survey, called the land which it insulates, Wellington Island; the seaward coast of which, bearing on the old chart the name of Campaña, is probably fronted by one or more islands. Fallos Channel, which separates the Campaña and Wellington Islands, was examined, from its northern entrance, for thirty-three miles, and was conjectured, after communicating with the sea at Dynely Sound, to extend to the southward, and fall into the Gulf of Trinidad by one of the deep sounds which were noticed on the north shore.

About thirty miles within the Mesier Channel, from the northern extremity, the west side appears to be formed by a succession of large islands, many of which are separated by wide channels lead-

* The precise situation of the wreck of this vessel had hitherto been very vaguely marked on our charts: a careful perusal, however, of Byron's narrative, and of Agueros's account of the Missionary Voyages in 1779, sufficiently points out the place within a few miles. It is on the north side, near the west end of the easternmost of the Guaianeco islands, which we named in consequence Wager Island. At Port Santa Barbara, seventeen miles to the southward of this group, a very old worm-eaten beam of a vessel was found, which there is reason to think may be a relic of that unfortunate ship. It was of English oak, and was found thrown up above the high-water mark upon the rocks at the entrance of the port. No other vestige was detected by us;—the missionaries, however, found broken glass bottles and other evident traces of the wreck. At Chiloe I saw a man who had formed one of this enterprising party, and obtained from him a curious and interesting account of those voyages.

† Agueros, p. 205, et seq. ‡ Ibid. p. 181, et seq. ‖ Ibid. p. 237.

ing to the south-west, and probably communicating with the Fallos Channel. On the eastern shore the openings were found to be either narrow inlets or abruptly terminating sounds.

On both sides of the channel the coast is hilly, but not very high, and in many places there is much low and generally thickly wooded land. This character distinguishes the Mesier from all other channels.

The trees here are nearly of the same description as those which are found in all parts between Cape Tres Montes and the Strait of Magalhaens. Of these the most common are an evergreen beech (*Fagus betuloides*), a birch-like beech (*Fagus antarctica*), the Winter's bark (*Winterana aromatica**), and a tree with all the appearance and habit of a cypress, of which the Indians make their spears. Among others there is one, the wood of which being extremely hard and weighty, answers better than the rest for fuel: the sealers call it 'the red wood,' from its colour. From the great quantity of timber which grows here it would be naturally supposed probable that spars for masts could be easily obtained, or at least woods useful for less important purposes; but, although many trees were found that were sufficiently large at the base, they grew to no great height; and, in consequence of the moisture of the climate, and the crowded state of the forests preventing the admission of the sun's rays, the wood generally proved to be decayed in the heart; besides being very subject, even after a long seasoning, to warp and split when exposed to a dry air.

Ten miles beyond White-Kelp Cove, which is fifty miles within the entrance, the character of the Mesier Channel changes entirely; the shore on either side being formed of mountainous and precipitous ridges rising abruptly from the water. After this, at Halt Bay, twenty-three miles beyond White-Kelp Cove, the channel narrows for a considerable distance, and in three particular places is not more than four hundred yards wide. This part of the channel is called in the chart the English Narrows. It is long and intricate, with many islands strewed throughout; and preserves its tortuous and frequently narrow course to its junction with the 'Wide Channel,' in which the breadth increases to two miles and a half; and then, running thirty-four miles with a direct and unimpeded course, falls into the Concepcion Strait as above stated.

At the point where the Mesier and the Wide Channels unite, a deep sound extends to the N. N. E. for forty-six miles. It was named Sir George Eyre's Sound. An extensive glacier sloping into the sea from the summit of a range of high snowy mountains, that are visible from many parts of the Mesier Channel, terminates

* Living plants of the above trees, and other vegetable productions from the Strait of Magalhaens, were introduced into England upon the return of the expedition, and have since thriven exceedingly well.

this sound; and near the head of it several large icebergs, containing no inconsiderable blocks of granite, were found aground*.

Of the archipelago of Madre de Dios we know very little. It has probably many deep openings on its seaward face, and is fronted by islands and rocks. Its character is rocky and mountainous, and by no means agreeable. The wide and safe channel of Concepcion Strait separates it from the main land, which in this part is much intersected by deep sounds, the principal of which, the Canal of St. Andrew, extends to the base of the snowy range of the Cordillera, and there Lieutenant Skyring describes it to be 'suddenly and boldly closed by tremendous and astonishing glaciers.'

Sarmiento's 'Puerto Bueno' was found to be, as the name describes it, an excellent harbour. The depth of water all over is not more than nine fathoms, an advantage which few harbours hereabout possess: a ship is in perfect security in any part, but this is the only peculiar advantage the port offers; for wood and water are equally abundant; fish are as easily to be caught; and the steamer or racehorse duck, geese, wild ducks, and other smaller birds, are as numerous in all other places. But of any other useful productions, or good soil, the country is quite destitute: 'for if,' says Lieutenant Skyring, 'we force a passage through the woods, it is over fallen trees and moss; if we walk over open, flat ground, we find the place a swamp; and if we climb the hills, we travel over a continuous rock, generally covered by a spongy moss, and entirely destitute of soil of any description.'

Behind Hanover Island, which is separated from Madre de Dios by the Concepcion Strait, the main is very much intersected by extensive sounds trending deeply into the land, like the St. Andrew Channel, to the base of the Andes.

South of Hanover Island is Queen Adelaide's Archipelago, through which are several channels that communicate with the Strait of Magalhaens; of which the principal, Smyth's Channel, falls into the strait at Cape Tamar.

Of the whole of the outer or sea-coast, from the Guaianeco Islands to the strait, we know little, our operations having been confined to the exploration of the interior channels and sounds, the examination of which is even yet far from being complete.

In the winter of 1829, my colleague, Captain Robert Fitzroy, the commander of the Beagle, in examining the Jerome Channel,

* Near Falcon Inlet, seven miles up the eastern side of Sir George Eyre's Sound, are some large 'rookeries,' or breeding-haunts, of fur-seal. Many thousands of these animals were congregated together, which had been probably driven from the sea-coast by the activity of the seal-fishers; and perhaps, for many years, if not ages, have been breeding undisturbed in this hitherto unknown, and therefore safe and quiet recess. Two seals that were killed appeared to be of the same description as the species which frequents the sea-coasts.

which communicates with the strait in that part called Crooked Reach, discovered 'Otway Water,' a large inland sea fifty miles long, trending to the N. E., and separated from the eastern entrance of the strait by a narrow isthmus; the actual width of which was not ascertained, for in the attempt the boats were nearly lost. The south-eastern shore is high and rocky, and generally precipitous, but the northern is formed by low undulating grassy plains, free from trees, and precisely like the country about the entrance of the strait. At the north-west corner of the water, Captain Fitzroy found the mouth of a channel which carried him in a north-west direction for twelve miles, when it opened into another inland salt-water lake, about thirty-four miles long and twenty wide. This was called the Skyring Water. The southern and western sides of the Water are bounded by mountainous land, but the northern shore is low, apparently formed of undulating downs and grassy plains, and in some places watered by rivulets. At the western extremity of the water, Captain Fitzroy observed two openings, separated by a remarkable castellated mountain which he called Dynevor Castle. Beyond the southernmost opening there was no land visible, not even a distant mountain, which induced Captain Fitzroy to suppose that it was a channel communicating with the western coast; but from what we now know, it is not probable that it can lead to anything of consequence. It is perhaps backed by low marshy land reaching to the hills at the bottom of Glacier Bay, which, from the distance being seventy miles, were not visible above the horizon. The northern opening probably winds under Dynevor Castle, and perhaps very nearly reaches the bottom of Obstruction Sound. The Skyring Water was not further explored; partly from want of a sufficient quantity of provisions to undertake it with any prospect of succeeding, and partly from a strong south-westerly gale, from which there was no shelter for the open boats in which this examination was performed. The remainder, therefore, of Captain Fitzroy's time was spent in perfecting what he had commenced; and, after an absence of thirty-two days, he rejoined his ship at Port Gallant.

At the western end of the Fitzroy Channel, which unites the waters, the shore is well clothed on the north side with luxuriant grass and trefoil, with here and there a sprinkling of brushwood, but is entirely destitute of trees. The soil, although dry, is light and tolerably good; but the ground is perforated everywhere by some burrowing animal, probably skunks, or *cavias*. The tracks of horses were noticed in many places, and the bones of guanacoes were scattered about. Water was not very plentiful, but several small brooks and springs in the sides of the hills were observed, sufficient for all useful purposes.

On the south side of the channel the land is low but wooded:

the banks are from five to forty feet high, sloping to the water, and covered with grass. In the entrance the tide ran five or six knots at the neaps, but inside with only half that rapidity. On the north side, at the distance of a mile and a half, there is a ridge of hills, at the summit of which Captain Fitzroy made an excursion, which he thus describes:

'Our way led through a scattered wood, the only one I saw on 'the north bank of the channel. Most of the trees appeared to 'have been either burned or blown down by the wind, and then 'blackened by decay. We reached the foot of the hills at eleven 'o'clock, having commenced our journey at eight, and attained 'the summit at twelve o'clock, whence the view we obtained 'amply repaid us for our trouble. It is a central spot; and, 'although not more than six hundred feet above the level 'of the sea, offers as extensive a view as any spot near it. 'We could see the hills near Cape Gregory, the Sweepstakes 'Foreland, Elizabeth Island, Cape Monmouth, the high peaks 'near Cape Froward, and the range of mountains between 'it and Jerome Channel, some of the mountainous land be-'tween Capes Phillip and Parker, and the whole extent of the 'Otway and Skyring waters. The latter seemed to be bounded 'to the north-east by down-like hills, about three or four hundred 'feet high. To the north of the station extends a range of similar 'downs, and to the east a succession of lagoons completely inter-'sect the flat country between it and Peckett's Harbour. No 'opening was observed in the eastern side of Otway Water, and 'the neck of land separating it from the strait near Elizabeth 'Island, did not seem to be more than three or four miles wide.'

In consequence of the supposed communication of the Skyring Water with some part of the western coast, a careful examination was made of every opening trending into the interior behind the islands and archipelagos that line the western coast; the result of which has proved that the hypothesis so naturally formed by Captain Fitzroy was not confirmed by fact. A reference to the chart will show how carefully the search was carried on, and with what want of success it was concluded. The deep opening discovered by Sarmiento, and named by him 'Ancon sin salida,' was found upon examination to extend so far into the interior, and in the direction of the Skyring Water, that the most minute investigation of the numerous sounds and canals was made in the perfect conviction of finding the desired communication. But after a patient, laborious, and minute investigation, particularly of those openings which led to the southward, among which Obstruction Sound held the most flattering appearance, Lieutenant Skyring, who performed this service, was obliged to give up the search and return. At one part, near the south-eastern end of the sound, he

entered an opening which at first had an appearance that was favourable to the desired communication, but it terminated in low woody land. There was, however, a wooded hill near the shore, which he ascended with the hope of obtaining a view of the country; but the sides and summit of the hill were so thickly clothed as to obstruct his view, and with the exception of some distant high land in the south-east quarter, and a sheet of water about six miles off in the same bearing, nothing was discerned to repay him for the fatigue and trouble of the ascent. Whether the water is a lagoon, or a part of the Skyring Water, or whether it communicates with the opening trending round the north side of Dynevor Castle, remains yet to be ascertained.

After being foiled in this attempt, Lieutenant Skyring proceeded onward in a S.S.W. direction, and after a pull of ten miles came to the bottom of the sound. It was terminated by high precipitous land encircling every part. 'Throughout the examination of 'this sound,' he writes, 'we never distinguished any strength of 'tide, and the rise and fall never appeared to have exceeded a 'foot; that there was a slight ebb and flow was evident from the 'streams of foam which extended from the water courses, and 'also from the fallen leaves borne off the shore of the bays in long 'lines; but signs like these, I believe, will be considered indica-'tive of there being no strength of tide. I have frequently noticed 'such appearances in large ports and inlets, but never in any 'channel.' Neither wigwams, nor traces of Indians, were seen in this sound, another proof, were one required, of the sound not communicating with the Skyring Water; for the Indians very rarely visit these deep inlets, but are always to be found in narrow straits or communicating channels, where, from the strength of the tide, seals and porpoises, which constitute the principal food of the Fuegian Indians, abound. Sarmiento's name, therefore, of 'Ancon sin salida' (a cove or inlet without a thoroughfare), a name, which we had hoped to have expunged from the chart, must now remain a lasting memorial of his enterprising character, and of a voyage deservedly one of the most celebrated as well as most useful of the age in which it was performed.

The termination of Obstruction Sound is one of the most remarkable features in the geography of this part of South America.

In this examination the southern extremity of the Cordillera was ascertained. The eastern shores of the interior channels were found to be low plains, with no hills nor mountains visible in the distance, and such being the feature also of the northern shores of the Otway and Skyring Waters, it is probable that all the country to the east of the sounds is a continued *pampa* or plain.

Recent traces of Indians were seen in some places, but at the time our party was there they were either absent or had concealed

themselves. I should not think that these interior sounds are much frequented by them; a family was, however, met in the Fitzroy Channel (which separates the Otway from the Skyring), clothed with guanaco skins, like the Patagonian tribes, but in manners and disposition resembling the wandering inhabitants of the Strait and Tierra del Fuego; and they had canoes, which the Patagonians do not use. They had probably come thus far for the purpose of communicating with the latter tribes, with whom they frequently have friendly intercourse. No guanacoes were seen either on the shores of the inland waters or of the sounds within the 'Ancon sin salida,' although the country, being open and covered with luxuriant grass, was peculiarly suited to their habits; but as several large herds of deer were observed feeding near the sea shore of Obstruction Sound, and the neighbouring country, the presence of these latter animals may probably be the cause; for on the eastern coast, where the guanacoes are every where abundant, the deer do not make their appearance. Sea-otters were the only other animals that we met with, and they were only occasionally noticed swimming about the kelp. The shores of the sounds were in many places crowded with the black necked swan (*Anas nigricollis*, Linn.), and there were a few seen, but only one captured, whose plumage, excepting the tips of the wings, which were black, was of a dazzling white colour. I have described it in the first part of the Proceedings of the Zoological Society as a new species (*Cygnus anatoïdes.*)

The Strait of Magalhaens, being a transverse section of the continent, exhibits a very good view of its geological structure. The strait may be divided into three portions; the western, central, and the eastern. The western end and centre are of primitive character, rugged and very mountainous; whilst the eastern portion is of recent formation and low. The western tract is composed of a succession of stratified rocks, a difference at once distinguishable by the form and nature of the ranges and the direction of the shores; the hills are irregularly heaped together; the sounds are intricate and tortuous in their course, and the shores are formed by deep sinuosities and prominently projecting headlands: the channels, also, are studded with innumerable islands and rocks extremely dangerous for navigation. In this portion the rock is, for the most part, granite and greenstone.

Near the centre of the strait, the rock being clay-slate, the mountains are higher, and more precipitous and rugged in their outline; and consequently not easily to be ascended. They are in general three thousand feet, but some are found to be four thousand feet, in height; and one, Mount Sarmiento, is upwards of six thousand feet high, and is covered throughout the year with snow. The line of perpetual snow in the strait seems to be about

three thousand five hundred or four thousand feet above the sea; for the mountains, whose height does not exceed three thousand, are, during the summer, frequently free from any, excepting in holes, where a large quantity is accumulated by drifting, and protected from the sun. The strait here is quite free from islands, and it is a remarkable fact, that where the greenstone formation terminates there the islands cease to appear.

The slate formation continues as far as Freshwater Bay, where the stratified rocks leave the coast and extend backwards in a north-west direction. The soil then becomes apparently a mixture of decomposed slate and clay; the slate gradually disappearing on approaching to Cape Negro, where the rock partakes of the character of the east coast. Here again we observe, along with the change of geological character, the reappearance of islands, the soil of which is clayey, but with masses of granite, hornblende rock and clay slate protruding in many places through the superficial soil, which, although it yields a poor grass, is entirely destitute of trees.

In that portion of the strait to the eastward of Cape Negro the hills are remarkable for the regularity and parallelism of their direction, and their general resemblance to each other. On the north shore, near Cape Gregory, a range of hills commences suddenly, with rather a precipitous ascent, and extends for forty miles to the north-east, where it terminates in detached rocky hills. The south-western end of the range is a ridge of flat-topped land covered with soil, but with here and there a protruding mass of primitive rock: one of these appeared to be of sienite or granite. The north-eastern end of this range is perhaps more bare of soil, and, therefore, exposes the rock, which shows itself in detached hills. Precisely similar in appearance and direction is a range on the south shore, about fifty miles in length, commencing at Cape Monmouth and terminating in detached hills in the vicinity of the south side of the First Narrow. The courses, also, of both the First and Second Narrows, which are just within the eastern entrance of the strait, are nearly parallel with these hills; and the smaller ranges of eminences, Elizabeth Island and the cliffy land of Cape Negro, where the clay formation commences, all trend to the N.N.E., preserving a general resemblance of form and character to the two ranges above mentioned.

The irregularity of the topographic features of the more western portion of the strait, combined with its confused assemblage and immense number of islands and rocks—the regularity of the strata, —the coinciding parallelism of all the bays, channels, and sounds, —and the total absence of islands in the central portion or slate formation, together with the remarkable similarity of the direction of the hills and coast line and the stratification of the north-

eastern tract, which is very different from that of the centre,—are very striking facts, and, geologically considered, are of great interest.

No less remarkable, however, and equally interesting, is the character of the vegetation; not so much in the variety of plants, as in their stunted growth to the westward, their luxuriance in the centre, and the total absence of trees to the eastward. For this modification the following reasons seem to me to account sufficiently:—to the westward the decomposition of granite, and the other primitive rocks which are found there, forms but a poor, unproductive soil; so that, although the land is thickly covered with shrubs, they are all small and stunted: the torrents of water also that pour down the steep sides of the hills, wash away the partial accumulations of soil that are occasionally deposited; consequently, few trees are to be found, excepting in clefts and recesses of the rock where decomposed vegetable matter collects and nourishes their growth; but even there they are low and stunted, for the most luxuriant seldom attain a larger diameter than nine or ten inches.

From the regularity of the direction of the strata in the slate districts the vallies are very extensive, and, being bounded on either side by precipitous mountains much intersected by deep ravines, receive large streams of water, which, uniting together in their course to the sea, form no inconsiderable rivers. During the winter months these rivers become swollen and overflow their banks, and deposit a quantity of alluvium, which, blending with the fallen leaves and other putrescent substances, produces a good superficial soil, in which trees grow to a large size, and the shrubs and smaller plants become particularly luxuriant and productive.

At Port Famine, and in its neighbourhood, the evergreen beech (*Fagus betuloides*) grows in the greatest abundance, and reaches a very large size. Trees of this species, of three feet in diameter, are abundant; of four feet there are many; and there is one tree (perhaps the very same noticed by Commodore Byron*), which measures seven feet in diameter for seventeen feet above the roots, and then divides into three large branches, each of which is three feet through. This venerable tree seemed to be sound, but from our experience of several others that were cut down, might be expected to prove rotten in the centre. This tendency to decaying in the heart may be attributed to the coldness of the schistose sub-soil upon which the trees are rooted, as well as to the perpetual moisture of the climate above alluded to.

The slate formation ceases at Port St. Mary, but there is no decided change in the vegetation until we come to Cape Negro, where the clay commences; and from thence onwards there is not a tree to be found. The nature of the soil is not favourable to

* Hawkesworth, Voyages, i., 38.

plants which take a deep root, and, therefore, only shrubs and grasses are found: the former are thinly scattered over the extensive plans which characterise this country; but the grasses are abundant, and although of a harsh and dry appearance, must be nourishing, for they form the chosen food of numerous and large herds of guanacoes.

Besides the evergreen beech above-mentioned, there are but few other trees in the Strait that can be considered as timber trees. Such an appellation only belongs to two other species of beech and the Winter's bark. The last, which is also an evergreen, is to be found mixed with the first, in all parts of the Strait; so that the country and hills from the height of two thousand feet above the sea, to the very verge of the high water mark, are covered with a perpetual verdure which is remarkably striking, particularly in those places where the glaciers descend into the sea; the sudden contrast in such cases presenting to the view a scene as agreeable as it seems to be anomalous. I have myself seen vegetation thriving most luxuriantly, and large woody stemmed trees of *Fuchsia* and *Veronica**, in England considered and treated as tender plants, in full flower, within a very short distance of the base of a mountain, covered for two-thirds down with snow, and with the temperature at 36°. The *Fuchsia* certainly was rarely found but in sheltered spots, but not so the *Veronica;* for the beaches of the bays on the west side of St. John's Island at Port San Antonio are lined with trees of the latter, growing even in the very wash of the sea. There is no part of the Strait more exposed to the wind than this, for it faces the reach to the west of Cape Froward, down which the wind constantly blows, and brings with it a succession of rain, sleet, or snow; and in the winter months, from April to August, the ground is covered with a layer of snow, from six inches to two or three feet in depth.

There must be, therefore, some peculiar quality in the atmosphere of this otherwise rigorous climate which favours vegetation; for if not, these comparatively delicate plants could not live and flourish through the long and severe winters of this region.

In the summer, the temperature at night was frequently as low as 29° of Fahrenheit, and yet I never noticed the following morning any blight or injury sustained by these plants, even in the slightest degree.

One circumstance, however, deserves to be mentioned, which may in some measure account for the innocuous effect of so low a temperature. I have occasionally, during the summer, been up the greater part of the night at my observatory, with the internal as well as the external thermometers as low as freezing point,

* The stems of both from six to seven inches in diameter.

without being particularly warmly clad, and yet not feeling the least cold; and in the winter, the thermometer, on similar occasions, has been at 24° and 26°, without my suffering the slightest inconvenience. This I attributed at the time to the peculiar stilluess of the air, although, within a short distance in the offing aud overhead, the wind was high.

Whilst upon this subject, there are two facts which may be mentioned as illustrative of the mildness of the climate, notwithstanding the lowness of the temperature. One is the comparative warmth of the sea near its surface, between which and the air, I have in the month of June, the middle of the winter season, observed a difference of 30°, upon which occasion the sea was covered with a cloud of steam. The other is, that parrots and humming-birds, generally the inhabitants of warm regions, are very numerous in the southern and western parts of the Strait—the former feeding upon the seeds of the Winter's bark, and the latter have been seen by us chirping and sipping the sweets of the *Fuchsia* and other flowers, after two or three days of constant rain, snow, and sleet, during which the thermometer has been at freezing point. We saw them also in the month of May upon the wing, during a snow shower; and they are found in all parts of the south-west and west coasts as far as Valparaiso. I have since been informed that this species is also an inhabitant of Peru; so that it has a range of more than 41° of latitude, the southern limit being 53½° south*.

Tierra del Fuego is divided into three large islands by two channels; one of which is opposite to Cape Froward, and the other fronts Port Gallant. The easternmost, Magdalen Sound, trends in a due south direction for nineteen miles, and separates the clay slate from the more crystalline rocks which seem to predominate in Clarence Island, and are chiefly of greenstone; though, at the eastern end, there is much mica slate. At the bottom of Magdalen Sound the channel turns sharply to the westward; and, after a course of about forty miles, meets the Barbara Channel, which, as abovementioned, communicates with the strait opposite to Port Gallant, and both fall into the sea together. Magdalen Sound and its continuation, Cockburn Channel, are almost quite free from islands and rocks; but the Barbara Channel, which separates the granite from the greenstone and mica slate districts, is throughout thickly strewed with islands, which reduce the

* This bird, although not rare in several English collections, had never been noticed until I forwarded it to England in the early part of the year 1827, when my friend Mr. Vigors described it in the Zoological Journal for the month of November, 1827, (vol. iii. p. 432,) under the name of *Mellisuga Kingii*. Shortly afterwards, M. Lesson published it in his Manuel d'Ornithologie, (vol. ii. p. 80,) as *Ornismya sephaniodes*, as a discovery belonging to the Coquille's voyage, in the illustrations of which it is figured at plate 31.

channel in some places to a mile, and, in one place, to not more than fifty yards in width. Here, of course, the tide sets with great strength. Several vessels, however, have passed through it under sail; and one ship, (a whaler belonging to Messrs. Enderbys,) working through the strait, and finding much difficulty in passing to the westward, bore up, and, the wind being fair and the distance to sea only fifty miles, ran through it without accident. The land to the westward of the Barbara Channel is high and rugged; and although in the vallies, ravines and sheltered nooks there is no want of vegetation, yet, in comparison with the eastern part of the strait, it has a very dismal and uninviting appearance. It was called by Sarmiento, 'Santa Ines Island'*; but Narborough called it, very appropriately, 'South Desolation, it being,' as he says, 'so desolate land to behold†.'

Clarence Island, the extent of which is fifty-two miles long and twenty-three broad, although equally rocky, is much more verdant in appearance. The uniform direction of the headlands of the north shore of this island is remarkable. Upon taking a set of angles with the theodolite placed upon the extremity of the west end of Bell Bay, opposite to Cape Holland, the most prominent points to the south-east, as far as could be seen, were all visible in the field of the telescope at the same bearing. The same thing occurred on the opposite shore of the Strait, where the projections of Cape Gallant, Cape Holland, and Cape Froward, are in the same line of bearing; so that a parallel ruler placed on the map upon the projecting points of the south shore, extended across, will also touch the headlands of the opposite coast.

The eastern island, which had been previously called, and of course retains on our charts the name of *King Charles's South Land*, extends from the entrance of the Strait to the outlet of the Barbara and Cockburn Channels, at Cape Schomberg. The northern part partakes of the geological character of the eastern portion of the Strait. The centre is a continuation of the slate formation, which is evident at a glance, from the uniformity of the direction of the shores of Admiralty Sound, the Gabriel Channel, and all the bays and mountain ranges of Dawson's Island. The south shore, or seaward coast line, is principally of greenstone, excepting the shores of the Beagle Channel, which extends from Christmas Sound to Cape San Pio, a distance of a hundred and twenty miles, with a course so direct that no points of the opposite shores cross and intercept a free view through; although its average breadth, which also is very parallel, is not more than a mile, and in some places only a third of a mile across. The south shores of Hoste and Navarin Islands are of horn-blende rock, which is also the principal component of the islands in the neighbour-

* Sarmiento, p. 180. † Narborough's Voyage, p. 78.

hood, as well as of the island itself of Cape Horn. The easteur part of King Charles's South Land is low, with plains like the Patagonian coast; but the range of high land crossing the Strait at Port Famine extends down the north side of Admiralty Sound, and, perhaps with some few interruptions, continues to the south-east extremity of the land, at Cape Good Success, which is the south cape of the west side of Strait Le Maire, and there terminates in lofty mountains covered with snow, one of which, called in the charts 'The Sugar-loaf,' is probably four thousand feet high.

The eastern shore of King Charles's South Land, towards the south part, is lofty, but near the northern part is very low. The interior is also low, with extensive plains, abounding with guanacoes, some of which were shot by the officers of the Beagle within fifty miles of Cape Horn.

In the year 1828, from the commencement of January to the middle of August, the Adventure (the ship I commanded) was at anchor at Port Famine, in the strait of Magalhaens, in latitude 53° 38¼′ south, and longitude 70° 54′ west of Greenwich; and during the whole of that time a careful meteorological journal was kept. The temperature was registered from a very good thermometer of Fahrenheit's scale, suspended within a copper cylindrical case of nine inches diameter, and perforated above and below with holes, to admit a free current of air. The cylinder was fixed to the roof of a shed, thatched with dried leaves to shelter it from the sun, while the sides were open. The barometer (a mountain barometer made by Newman, with an iron cylinder) was hung up in the observatory, five feet above the high water mark, and both instruments were examined carefully and regularly at the following hours, viz.: six and nine o'clock in the morning, at noon, and at three and six o'clock in the evening. The state of the atmosphere was observed daily, by Daniel's hygrometer, at three o'clock in the afternoon. The maximum and minimum temperatures were also observed twice in twenty-four hours, from a Six's thermometer, viz.: at nine o'clock in the morning, and at nine in the evening. From this journal the following abstract has been drawn up:—

SUMMARY OF METEOROLOGICAL OBSERVATIONS.

Table I.

Mean height of the Barometer, corrected for Neut^{l}. I^{a}. and Capill^{y}. and reduced to the temperature of 32°.

Hour.	AUTUMNAL PERIOD.			BRUMAL PERIOD.			12 Days of August.	MEANS.		
	Feb.	March.	April.	May.	June.	July.		Autum.	Brumal.	Au. & Br.
	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.
VI.	29·404	29·631	29·569	+29·322	+29·279	29·581	29·230	29·531	+29·394	29·463
IX.	+·415	+·655	+·581	·311	·277	+·584	·257	+·550	·391	+·470
XII.	·405	−·641	·574	·292	·272	·576	·308	·540	·380	·460
III.	−·399	·647	−·555	−·285	−·271	−·542	·318	−·534	−·366	−·450
VI.	·404	·657	·579	·308	·294	·571	·318	·540	·391	·465
Means	29·405	29 646	29·572	29·304	29.279	29·571	29·286	29·539	29·384	29·462

Table II.

Thermometer—Fahrenheit.

Hour.	AUTUMNAL PERIOD.			BRUMAL PERIOD.			12 Days of August.	MEANS.		
	Feb.	March.	April.	May.	June.	July.		Autum.	Brumal.	Au. & Br
	°	°	°	°	°	°	°	°	°	°
VI.	44·30	44·20	35·82	34·74	30·67	30·53	33·46	41·44	31·98	36·71
IX.	51·38	49·87	40·61	36·36	31·83	31·50	35·11	47·29	33·23	40·26
XII.	54·23	52·53	45·42	40·68	36·02	35·93	37·92	50 73	37·54	44·13
III.	54·44	52·39	44·88	39·62	34·36	34·59	36·24	50·57	36·19	43·38
VI.	51·16	47·84	39·83	35·97	31·98	32·58	33·54	46·13	33·51	39·82
Means	51·10	49·37	41·22	35·47	32·97	33·03	33·25	47·23	34·49	40·86

TABLE III.

DANIEL'S HYGROMETER, observed at 3 P.M., daily, and compared with the mean temperature.

	AUTUMNAL PERIOD.			BRUMAL PERIOD.			12 Days of August.	MEANS.		
	Feb.	March.	April.	May.	June	July.		Autum.	Brumal.	Au. & Br.
	°	°	°	°	°	°	°	°	°	°
Monthly mean tem. from Table II.	51·10	49·37	41·22	35·47	32·97	33·03	33·25	47·23	34·49	40·86
Temperature of dew point	41·31	40·75	34·83	34·88	30 28	29·41	30 28	38·96	31·52	35·24
Difference between mean temperat. and dew point	9·79	8·62	6·39	0·59	2·69	3·62	2·97	8·27	2·30	5·28
Dryness (the point of Saturation being 1000)	711·8	736·42	809·9	980·6	903·8	876·3	894·6	752·71	920 23	836·47
Elasticity of vapour	295·7	289·0	238·64	239·04	202·24	196·46	202·2	274 44	212·58	243·51
Weight of a cubit foot of vapour in grains	3·3441	3·2801	2·7550	2·7926	2·3731	2·3048	2·3421	3·1264	2·4902	2·8083

TABLE IV.

Months.	Pressure.			Temperature. Air.			Temperature. Water.			Dew Point, Hygrometer.		
	Max.	Min.	Range.	Max.	Min.	Range	Max.	Min.	Range	Max.	Min.	Range
	inches.	inches.	inches.	°	°	°	°	°	°	°	°	°
February	30·087	28·768	1·319	66	28	38 0	52·5	43·7	8·8	51·2	31	20·2
March	30·099	29·004	1·095	68	30·5	37·5	50·5	41·5	9·0	47	35	12
April	30·055	28·844	1·211	57·5	28	29·5	47·8	40·5	7·3	42	27	15
May	29·850	28·795	1·055	49·5	20·5	29·0	48·2	42·8	5·4	43	21	22
June	30·079	28·274	1·805	48·7	19·2	29·5	47·0	40·3	6·7	41·5	20	21·5
July	30·500	28·942	1·558	44·2	12·6	31·6	45·0	41·8	3·2	39·7	19	20·7
August 12 days	29·782	28·709	1·073	49·2	18·5	30·7	43·1	40·2	2·9	37·2	20·5	16·7

From the preceding tables it will be seen that the mean temperature for the autumnal period (the months of February, March, and April) was 47°2; the maximum and minimum were respectively 68° and 28°. For the brumal period, the three following months, the mean temperature was 34°·5, and the maximum and minimum 49°·5 and 12°·6. During the former, or autumnal period, the barometer ranged between 30·099 and 28·768 inches, and for the latter it was between 30·5 and 28·274

inches. The range for the first being 1·331 inches, and for the last 2·226 inches.

The eastern coast of Patagonia, from the entrance of the Strait of Magalhaens to the River Plate, is comparatively low. From Cape Virgins to Port St. Julian, where porphyritic clay-stone commences, the coast is formed of clay cliffs, horizontally stratified, and the country is undulating, with extensive plains, or *pampas*, covered with grass, but without trees. At Port St. Julian the country becomes hilly, and continues so as far to the northward as latitude 44°, the rock being porphyritic. The clay formation to the southward has been likened to the appearance of the coast of Kent, and, at a short distance, it bears, certainly, a very great resemblance to it; but the cliffs, instead of being of chalk, are composed of a soft marly clay, without any gravel or impressions of organic remains, excepting at Port St. Julian, where fossil shells, both bivalves and univalves, are found imbedded in clay cliffs; and, on the surface, are lying, strewed about, large oyster shells.

In the clay formation there are three rivers; the Gallegos in latitude 51° 38′; Port Santa Cruz in latitude 50° 7′, and in 49° 12′ is Port San Julian. The first does not extend further into the interior than forty miles from the coast, and to about the same distance Port Santa Cruz penetrates; but Port San Julian is of much smaller size, and Coy Inlet, in latitude 50° 58′, can only be entered by boats. The Gallegos, at high water, may be easily entered, but, at low water, the banks are dry to a great extent; a channel however is left on its south side of sufficient depth for a small vessel: the tide rises here forty-six feet, and the stream is very strong. At Santa Cruz and Port San Julian the tides are neither so strong, nor do they rise and fall so much as at the Gallegos.

Port Desire, about thirty miles to the southward of Cape Blanco, the mouth being in 47° 45′ south latitude, has a narrow entrance with strong tides; but affords in the offing very good anchorage as well as shelter from the prevailing winds, which are off shore or westerly. The river extends up the country nearly in a due-west direction for eighteen miles, but the land is dry and parched, and very unsuitable for the establishment which the Spanish government formed there not many years since, and of which evident traces remain to this day.

St. George's Gulf, called in the old charts 'Bahia sin Fondo,' or Deep-Sea Gulf, was formerly considered to be a deep sinuosity of the coast into which a river emptied its waters after winding through a large tract of country; for, until the Descubierta and Atrevidas voyage of discovery, very vague accounts had been given of this or indeed of any other part of the coast. The Gulf, upon

that examination, was found to possess no river or creek in any part excepting on the north side, where there are several deep bays and coves which are and have been frequented by our sealing vessels. Its northern head is called Cape Two Bays; and, thirty miles to the northward, is Port St. Elena, which is the northern limit of our examination of the eastern coast. The country about is dry and parched, although thickly covered with small shrubs and a tolerable grass, on which large herds of guanacoes feed.

According to Falconer, (the Jesuit missionary who resided many years among the Indian tribes inhabiting the country about Buenos Ayres,) the eastern coast between the latitudes of 41° and 51° is frequented by the natives for the purpose only of burying the dead: they have, however, been occasionally met with travelling along the coast, apparently without any particular object in view. Near Port Desire I have seen the graves of the Indians on the summit of the hills, but the bodies had been removed, probably by the Indians themselves; for we are informed by Falconer, that, after the dead have been interred twelve months, the graves are visited by the tribe, for the purpose of collecting the bones and conveying them to their family sepulchres, where they are set up and adorned with all the beads and ornaments the friends and family of the deceased can collect for the occasion. The ceremony is performed by certain women of the tribe whose peculiar office it is to attend to these rites.